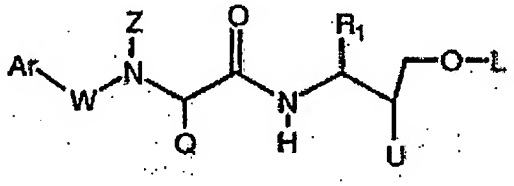
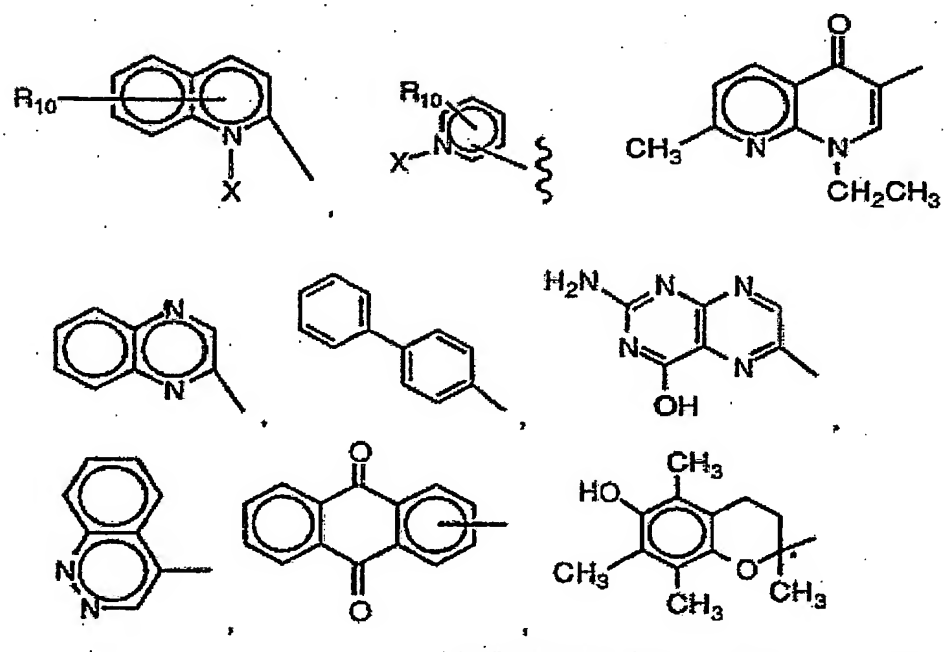
We claim:

1. A method of treating or preventing Alzheimer's disease in a subject in need of such treatment comprising administering a therapeutically effective amount of a compound of formula I or a pharmaceutically acceptable salt thereof:

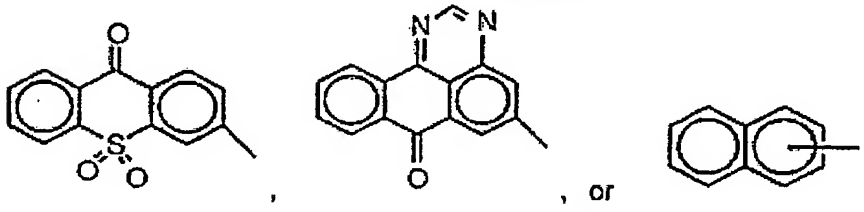


I

wherein Ar is



* indicates a mixture of isomers at this carbon

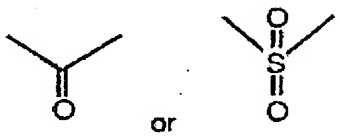


;

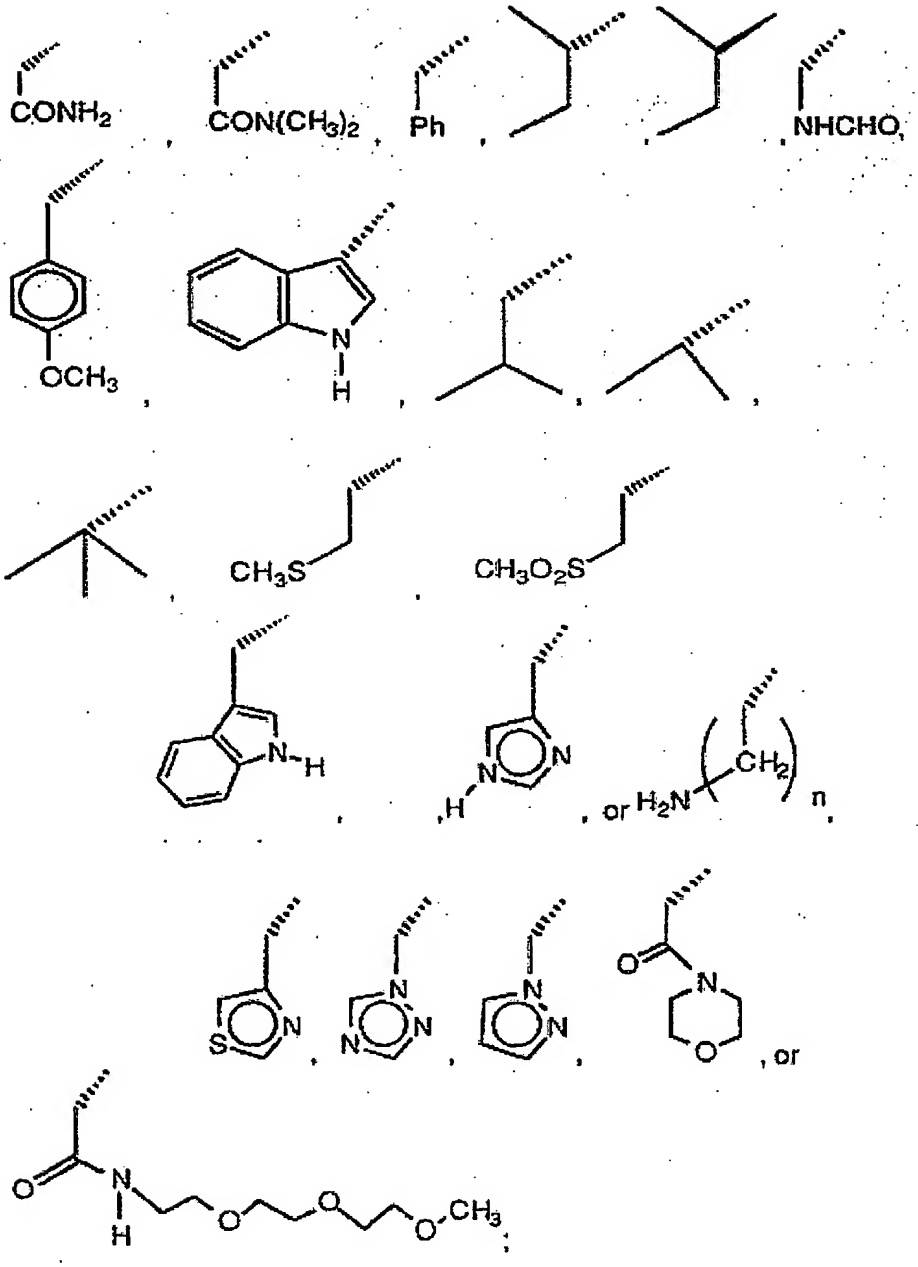
R_{10} is H or OH;

X is O or an electron pair;

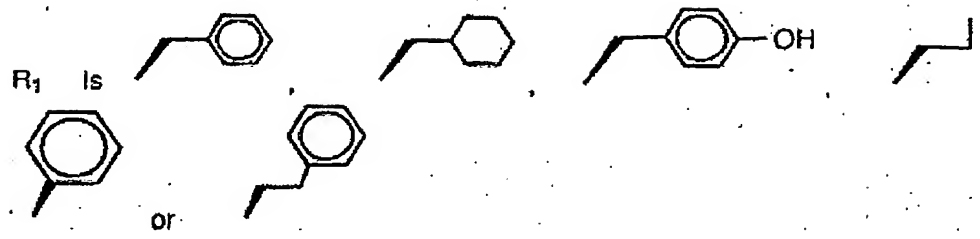
W is



Q is

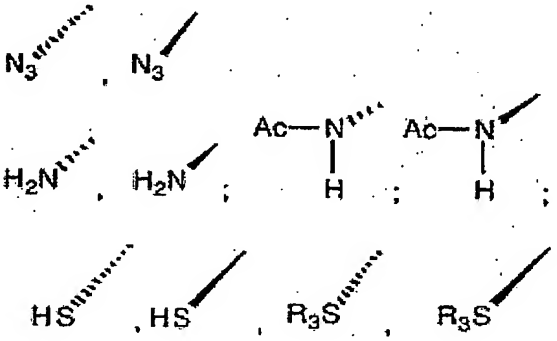


5

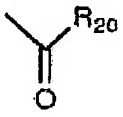
R_1 is 

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

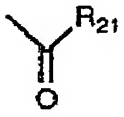
U is



R_3 is C_{1-11}-alkyl or

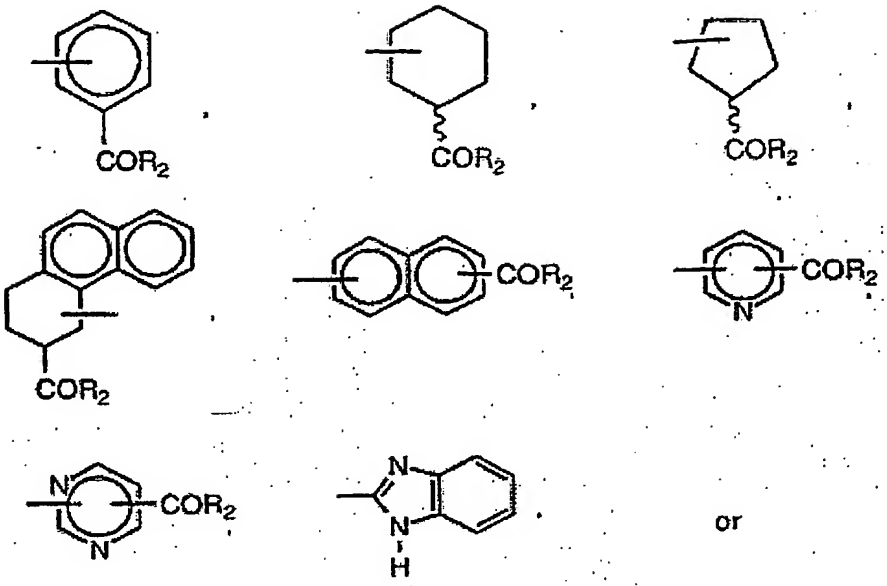


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or

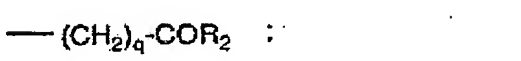


wherein R_{21} is C_{1-10}-alkyl;

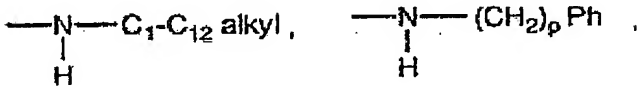
L is

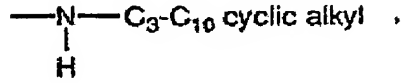


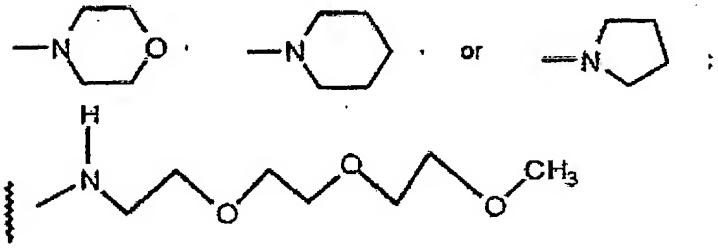
or



R_2 is







m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

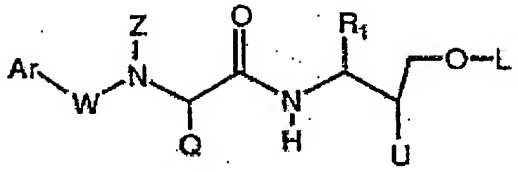
an epimer or racemate thereof.

2. A method of treating Alzheimer's disease in a subject in need of such treatment comprising administering to the subject a compound disclosed in claim 1, or a pharmaceutically acceptable salt thereof.

3. A method of treating Alzheimer's disease by modulating the activity of beta amyloid converting enzyme, comprising administering to a subject in need of such treatment a compound disclosed in claim 1, or a pharmaceutically acceptable salt thereof.

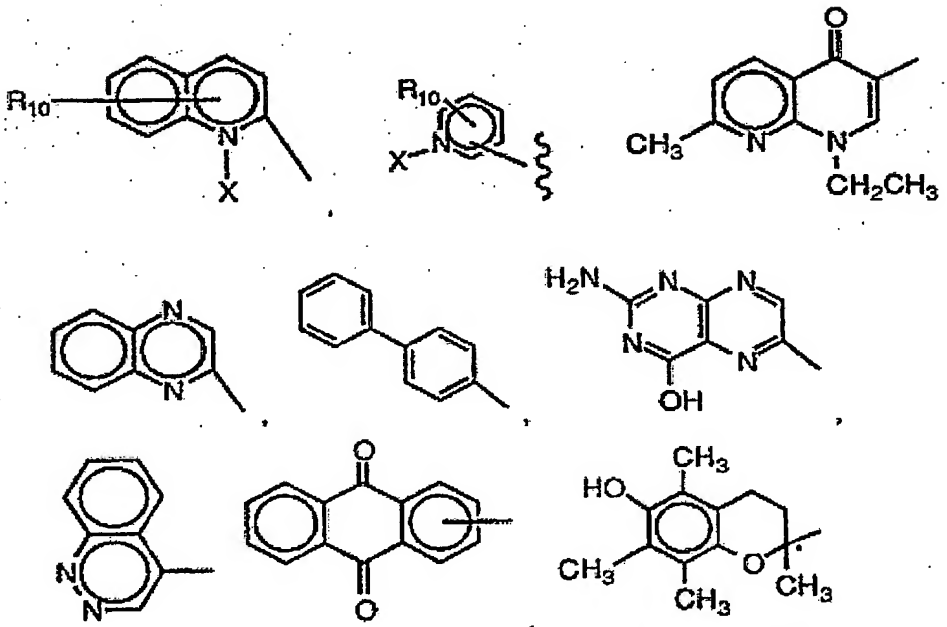
4. The method according to claim 1, further comprising the administration of a P-gp inhibitor, or a pharmaceutically acceptable salt thereof.

5. A method of treating a subject who has, or in preventing a subject from getting, a disease or condition selected from the group consisting of Alzheimer's disease, for helping prevent or delay the onset of Alzheimer's disease, for treating subjects with mild cognitive impairment (MCI) and preventing or delaying the onset of Alzheimer's disease in those who would progress from MCI to AD, for treating Down's syndrome, for treating humans who have Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, for treating cerebral amyloid angiopathy and preventing its potential consequences, i.e. single and recurrent lobar hemorrhages, for treating other degenerative dementias, including dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, frontotemporal dementias with parkinsonism (FTDP), dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, or diffuse Lewy body type of Alzheimer's disease and who is in need of such treatment which includes administration of a therapeutically effective amount of a compound of formula (I)



I

wherein Ar is



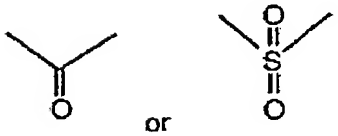
* indicates a mixture of isomers at this carbon

or ;

R_{10} is H or OH;

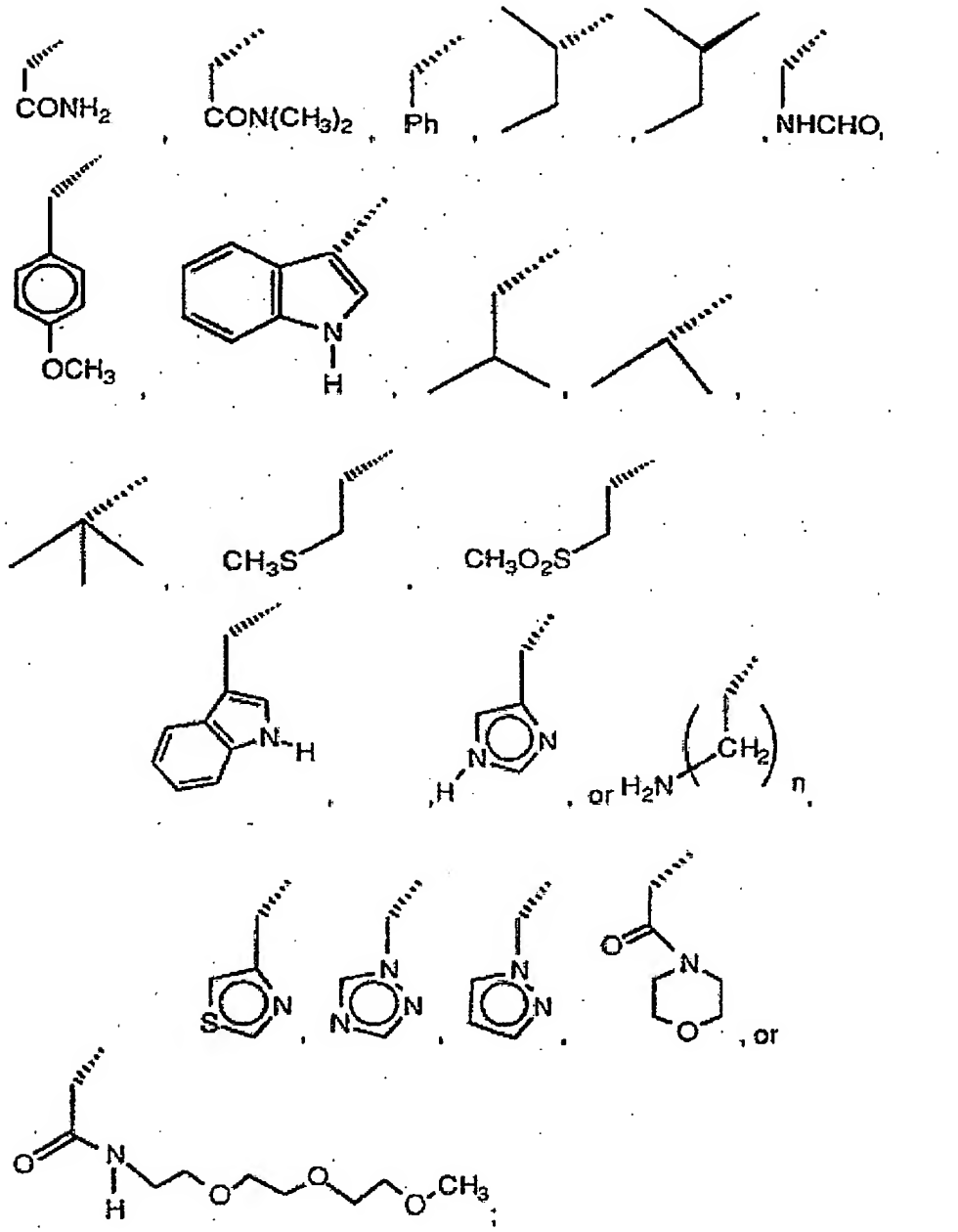
X is O or an electron pair;

W is

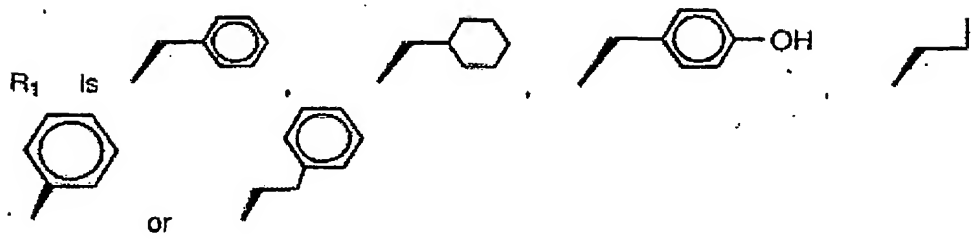


or ;

Q is

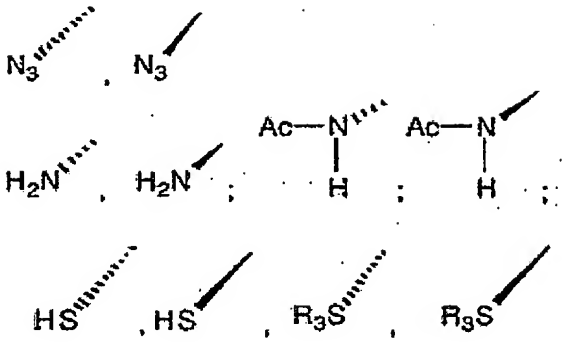


R_1 is

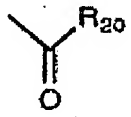


Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

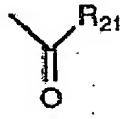
U is



R_3 is C_{1-11}-alkyl or

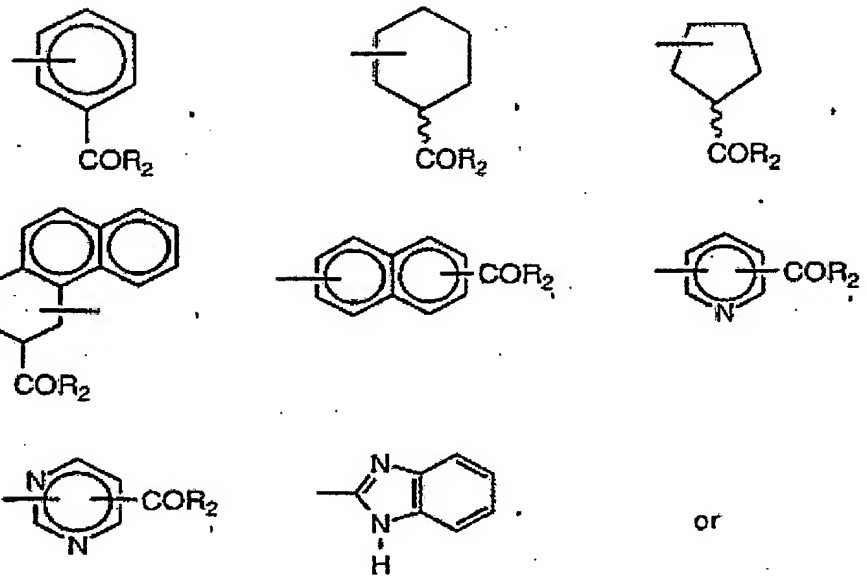


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



wherein R_{21} is C_{1-10}-alkyl;

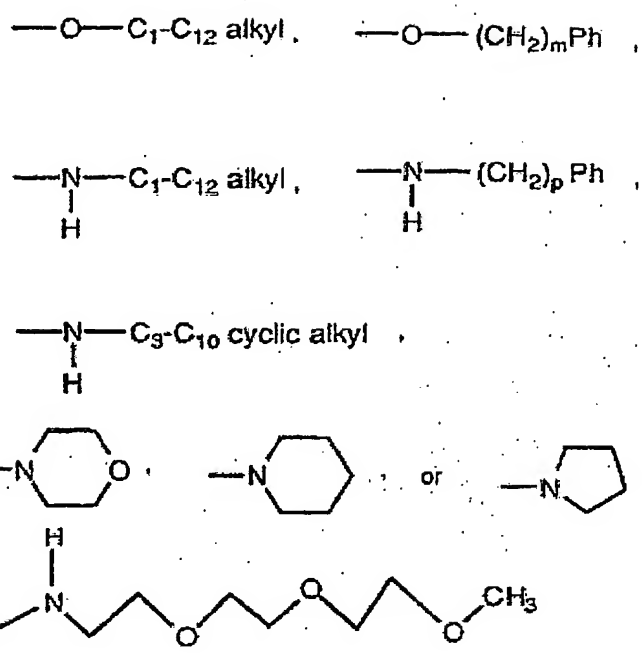
L is



or

; and

R_2 is



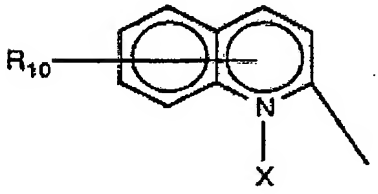
m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

an epimer or racemate thereof.

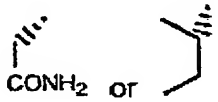
6. The method according to any of claims 1-5 wherein Ar is



7. The method according to any of claims 1-5 wherein W is selected from the group consisting of $-SO_2-$ and -CO-.

8. The method accrding to any of claims 1-5 wherein W is -CO-.

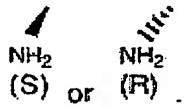
9. The method according to any of claims 1-5 wherein Q is selected from the group consisting of



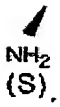
10. The method according to any of claims 1-5 wherein Q is

11. The method according to any of claims 1-5 wherein Q is

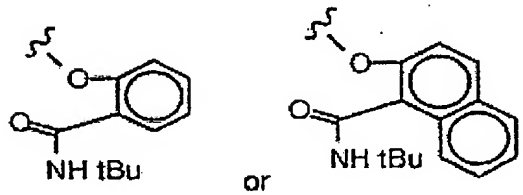
12. The method according to any of claims 1-5 wherein U is selected from the group consisting of



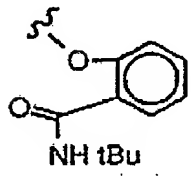
13. The method according to any of claims 1-5 wherein U is



14. The method according to any of claims 1-5 wherein -O-L is

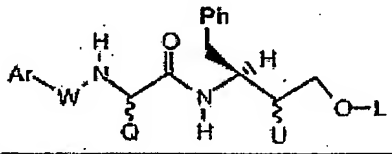


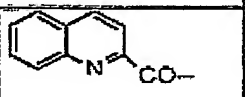
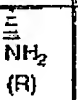
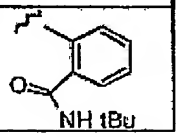
15. The method according to any of claims 1-5 wherein -O-L is

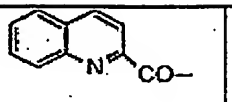
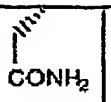
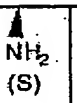
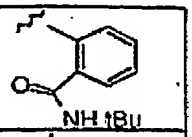
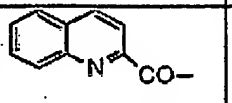
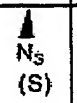
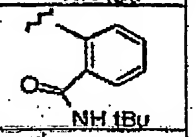
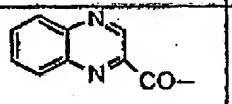
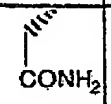
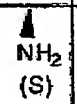
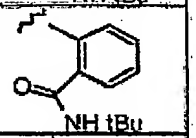
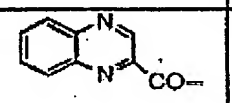
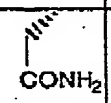
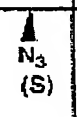
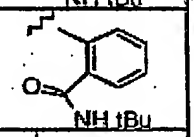
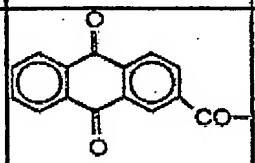
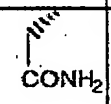
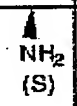
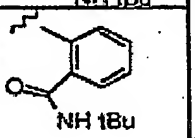
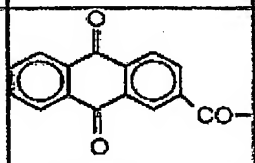
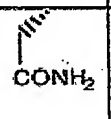
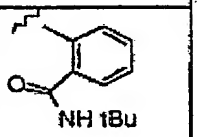
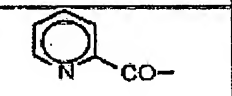
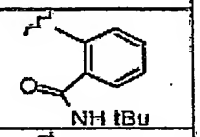
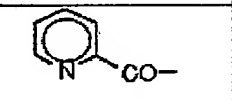
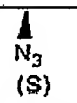
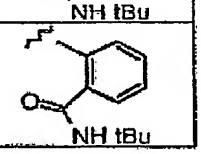


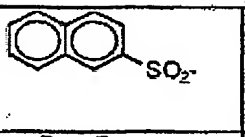
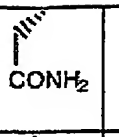
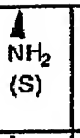
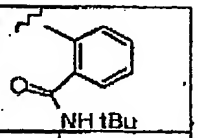
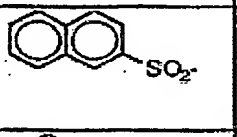
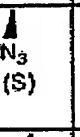
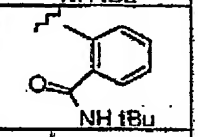
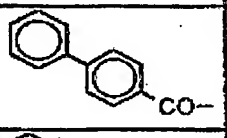
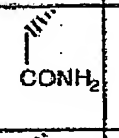
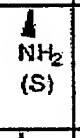
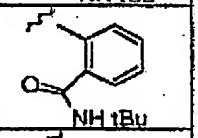
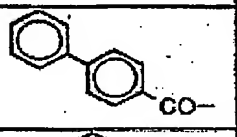
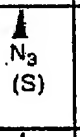
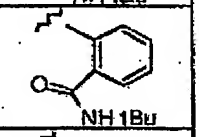
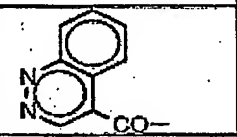
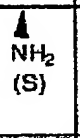
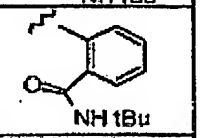
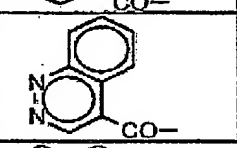
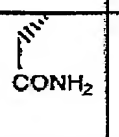
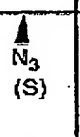
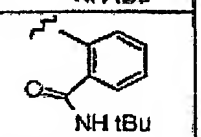
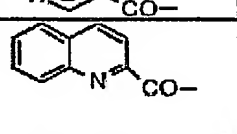
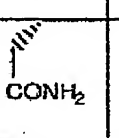
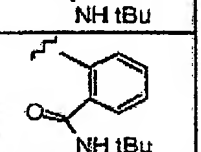
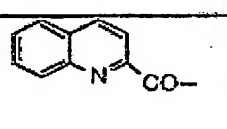
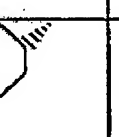
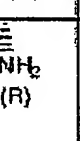
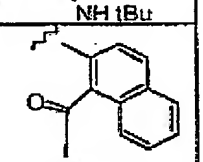
16. The method according to any of claims 1-5wherein R_2 is selected from the group consisting of NH-tBu or NH-Ph.

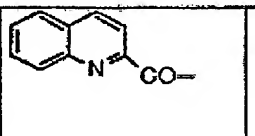
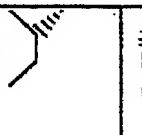
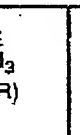
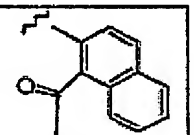
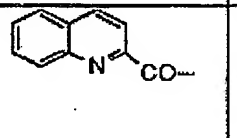
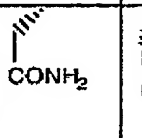
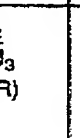
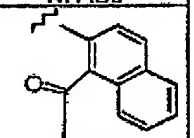
17. A method of treating or preventing Alzheimer's disease in a subject in need of such treatment comprising administering a therapeutically effective amount of a compound selected from the group consisting of:



Compound	Ar-W-	Q	U	L
A				

B				
C				
D				
E				
F				
G				
H				
I				

J				
K				
L				
M				
N				
O				
P				
Q				

R				
S				
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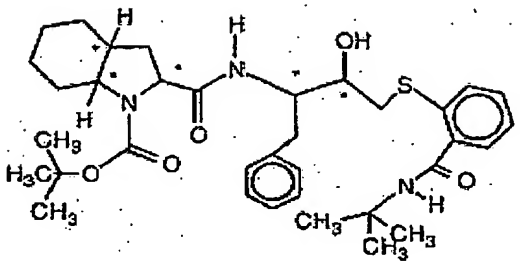
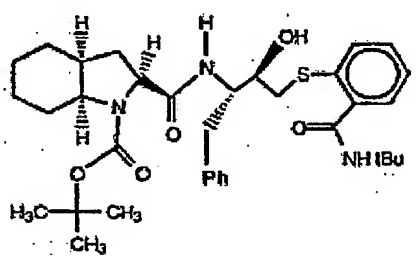


wherein * denotes all the possible stereoisomers at the particular carbon, and mixtures thereof;



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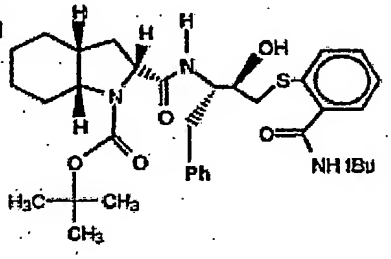
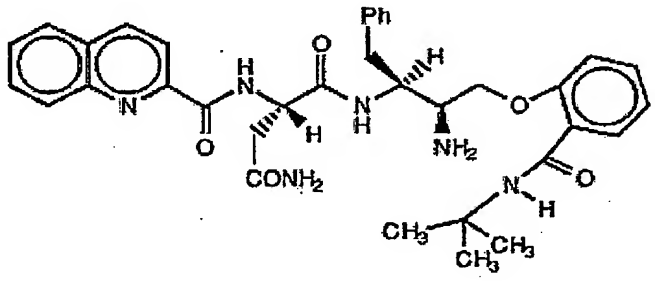


or a mixture thereof;



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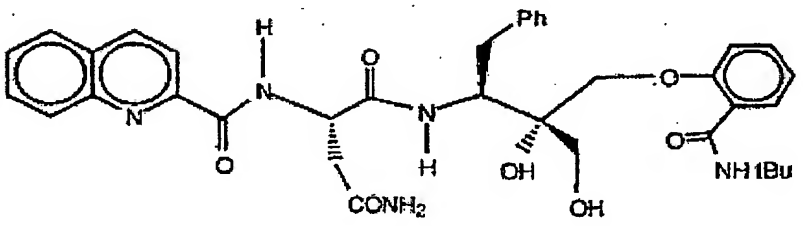

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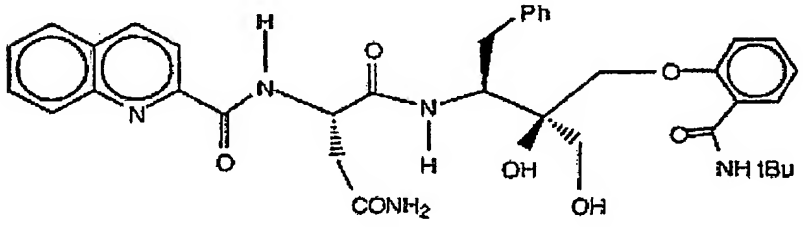
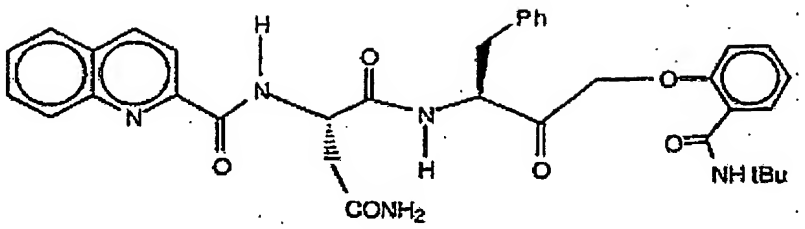
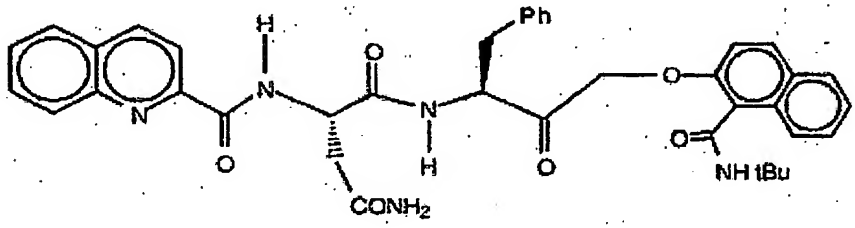


;



;



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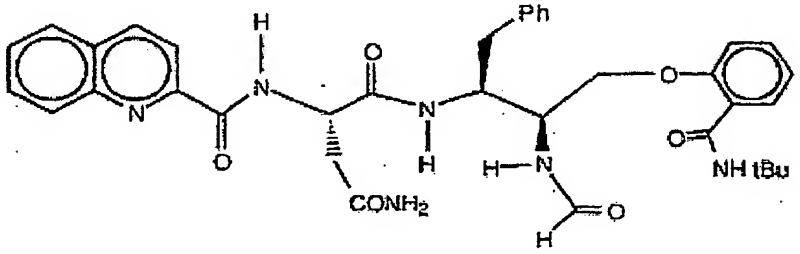
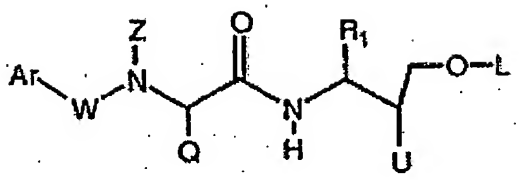


;

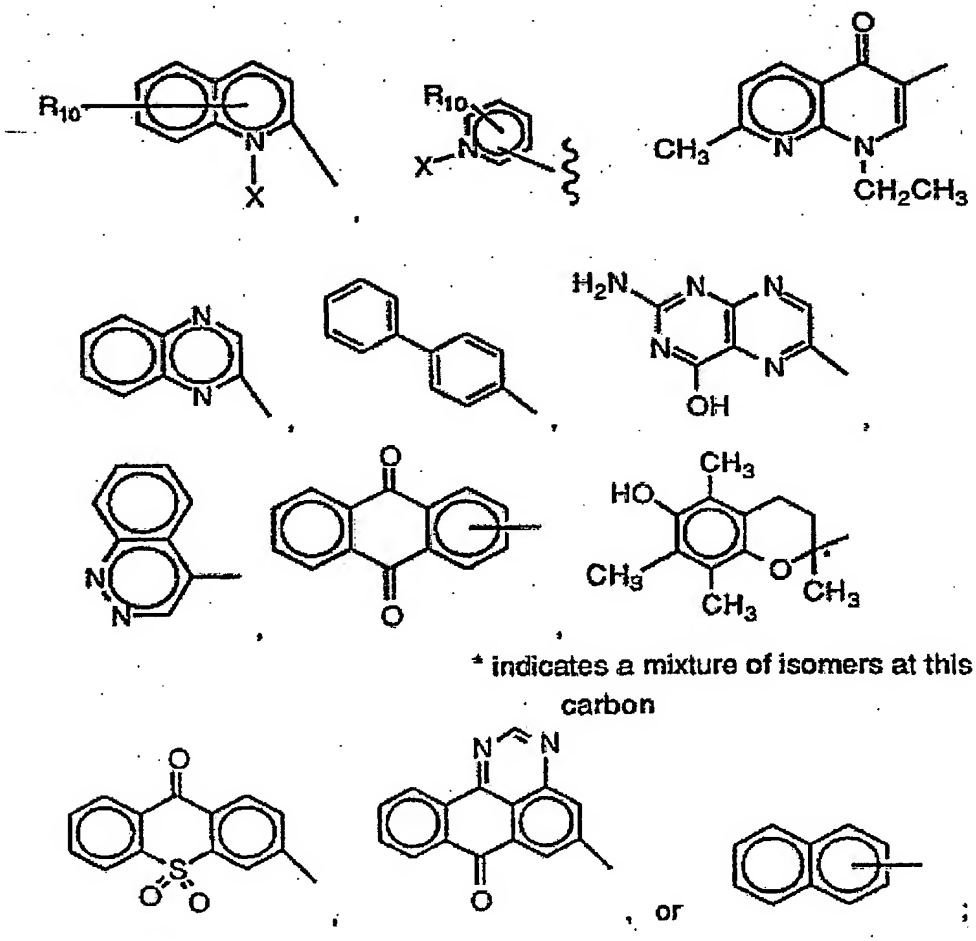
or pharmaceutically acceptable salts thereof.

18. Use of a compound of Formula (I) or a pharmaceutical salt thereof, in the manufacture of a medicament for the treatment or prevention of conditions selected from the group consisting of Alzheimer's disease, mild cognitive impairment (MCI) Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, degenerative dementias, including dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, frontotemporal dementias with parkinsonism (FTDP), dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, or diffuse Lewy body type of Alzheimer's disease:



I

wherein Ar is

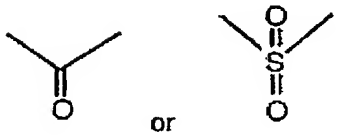


* indicates a mixture of isomers at this carbon

R_{10} is H or OH;

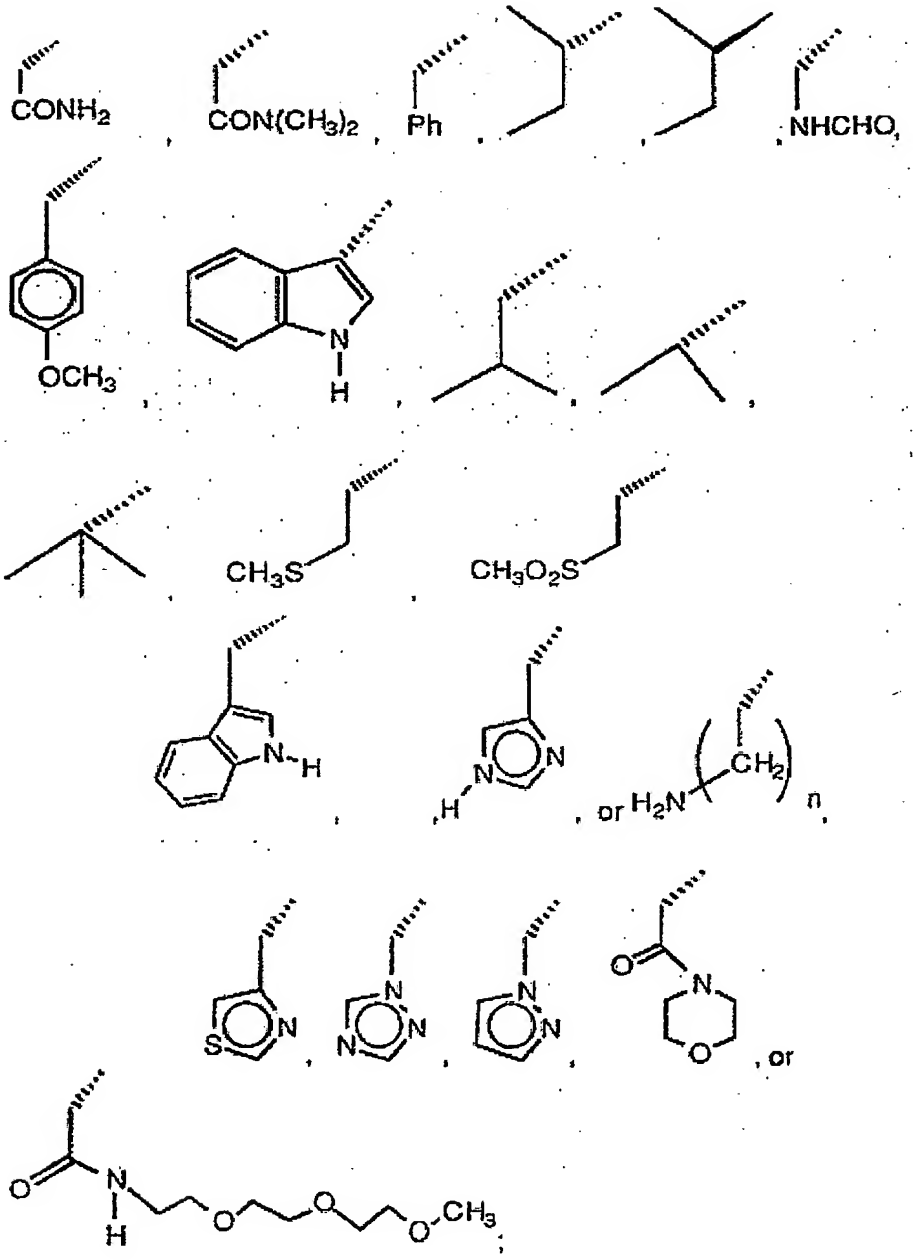
X is O or an electron pair;

W is



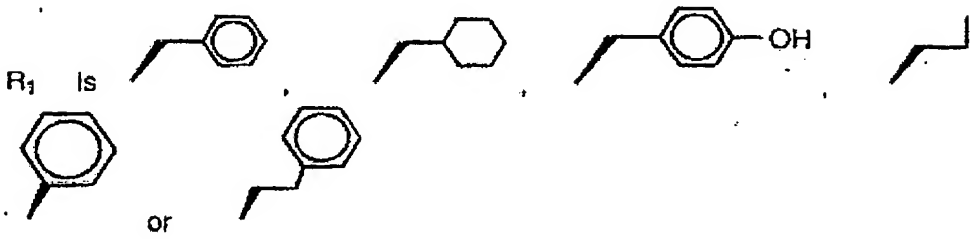
;

Q is


CONH2
CON(CH3)2
Ph
NHCHO
OCH3
N
H
CH3S
CH3O2S
N
H
N
H
N
or H2N
CH2
n
S
N
N
N
N
N
O
N
O
or
O
N
H
O
O
O
CH3

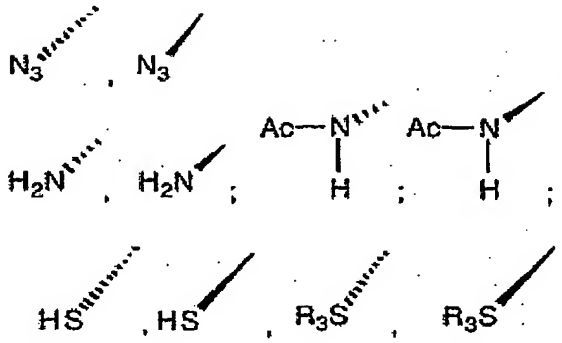
5

R1 is

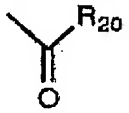

OH
or

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

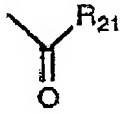
U is



R_3 is C_{1-11}-alkyl or

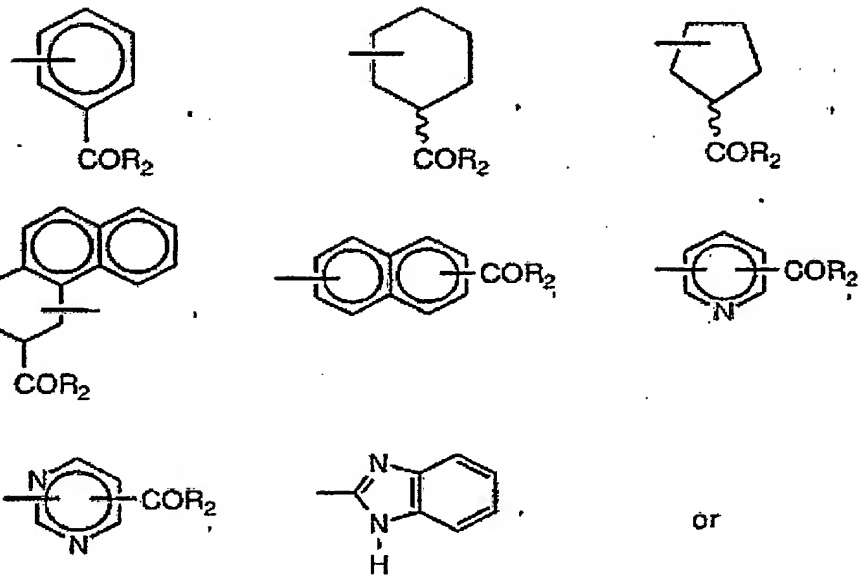


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



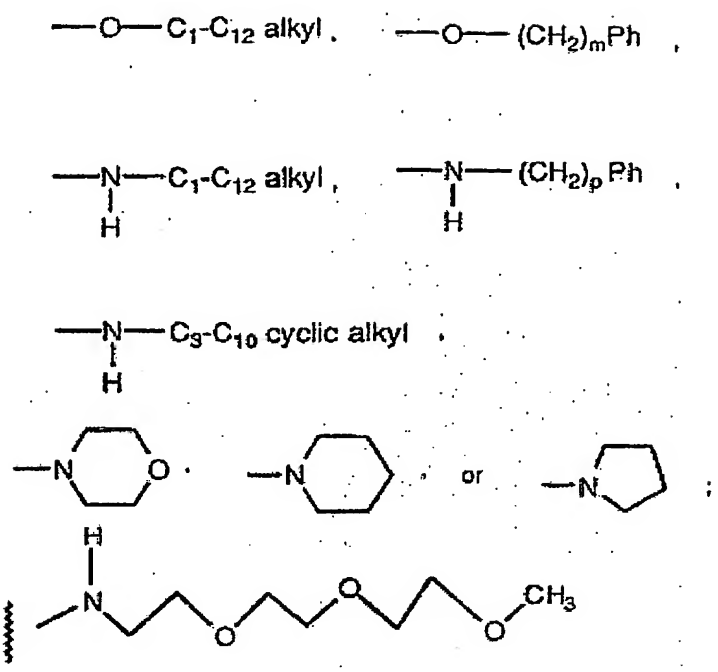
wherein R_{21} is C_{1-10}-alkyl;

L is



$-(CH_2)_q-COR_2$;

R_2 is



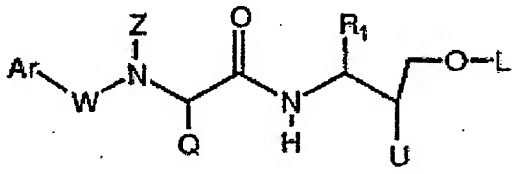
m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

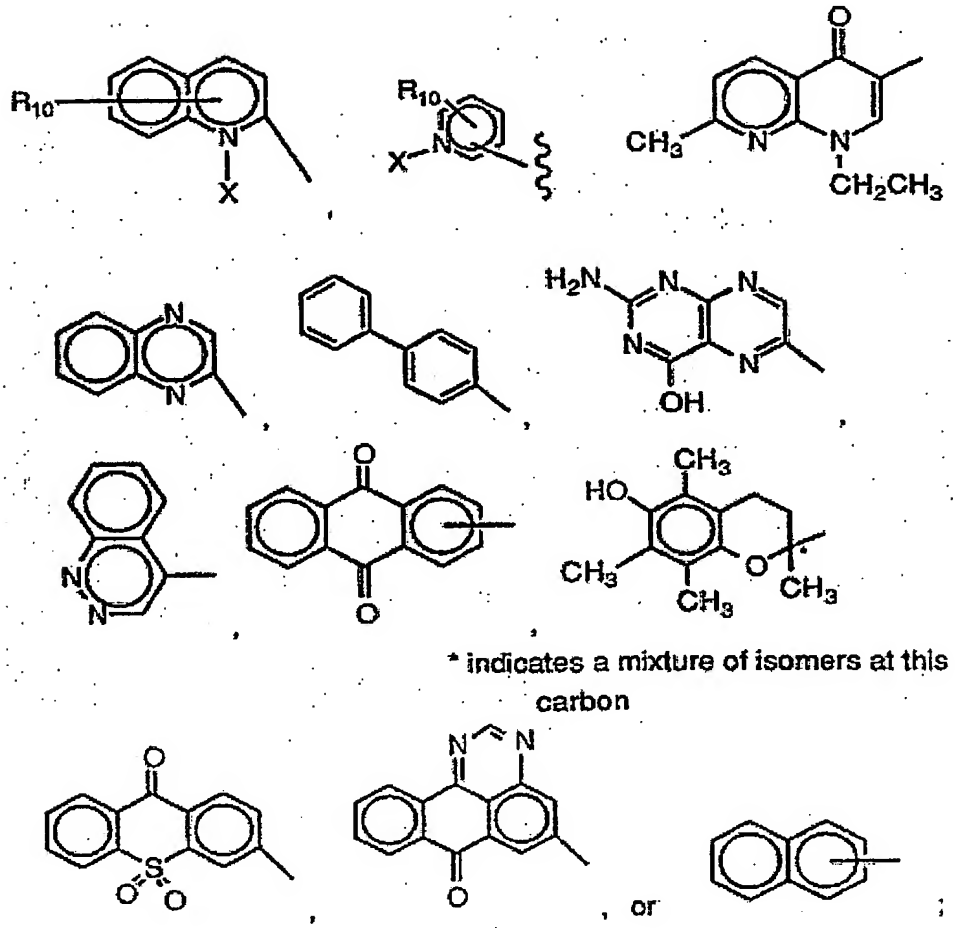
an epimer or racemate thereof.

19. A method for inhibiting beta-secretase activity, comprising contacting an effective amount for inhibition of a compound of formula (I)



I

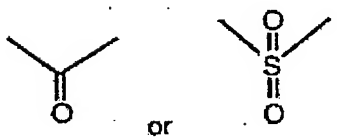
wherein Ar is



R_{10} is H or OH;

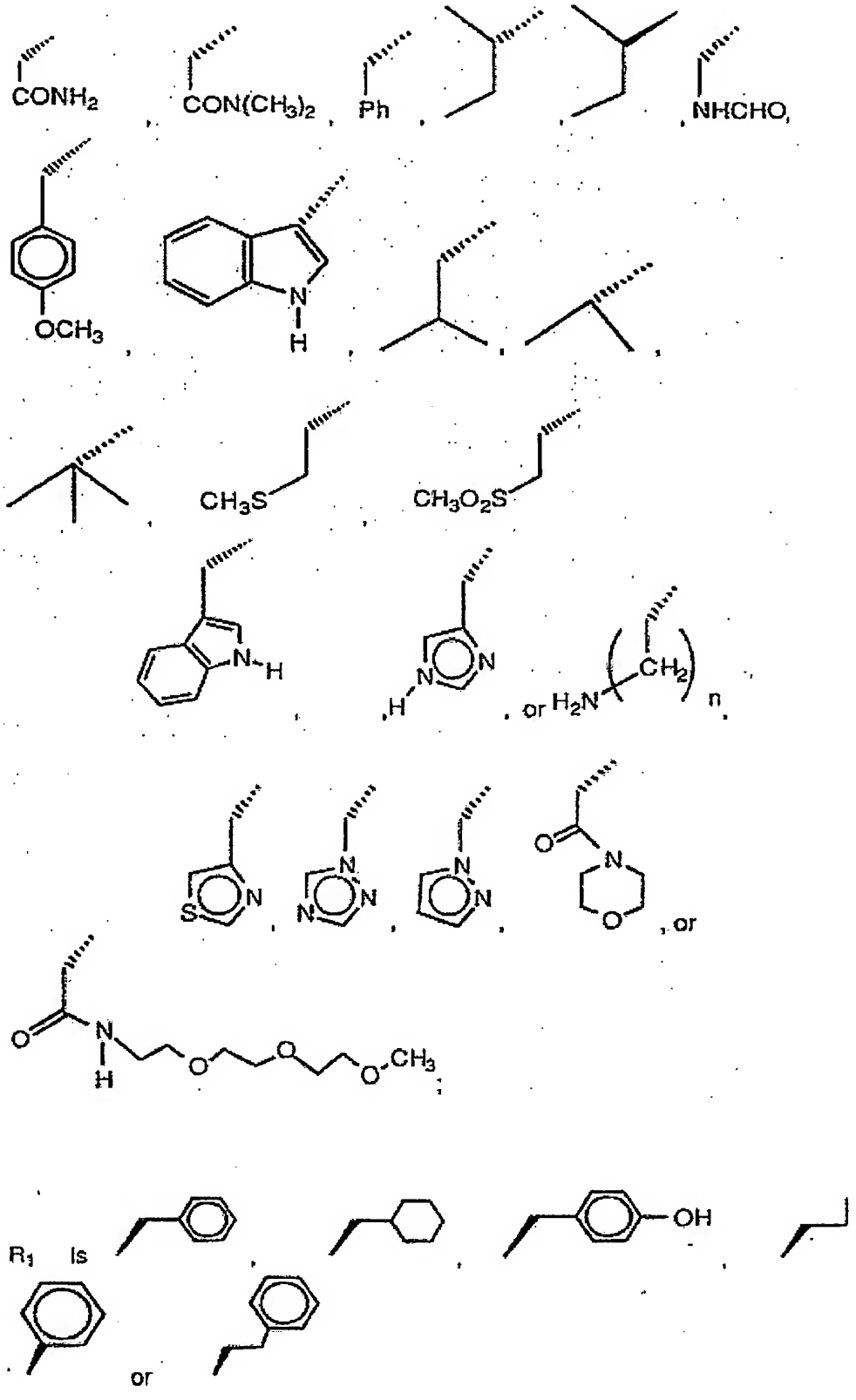
X is O or an electron pair;

W is



;

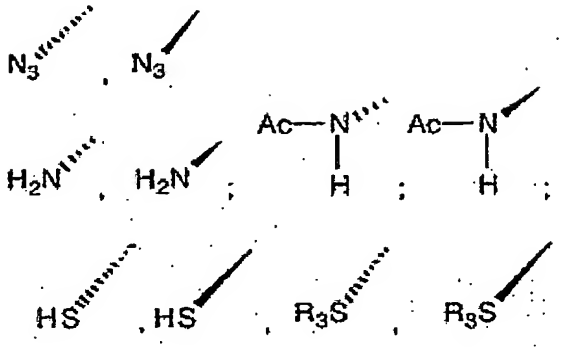
Q is



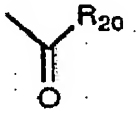
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

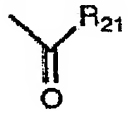
U is



R_3 is C_{1-11}-alkyl or

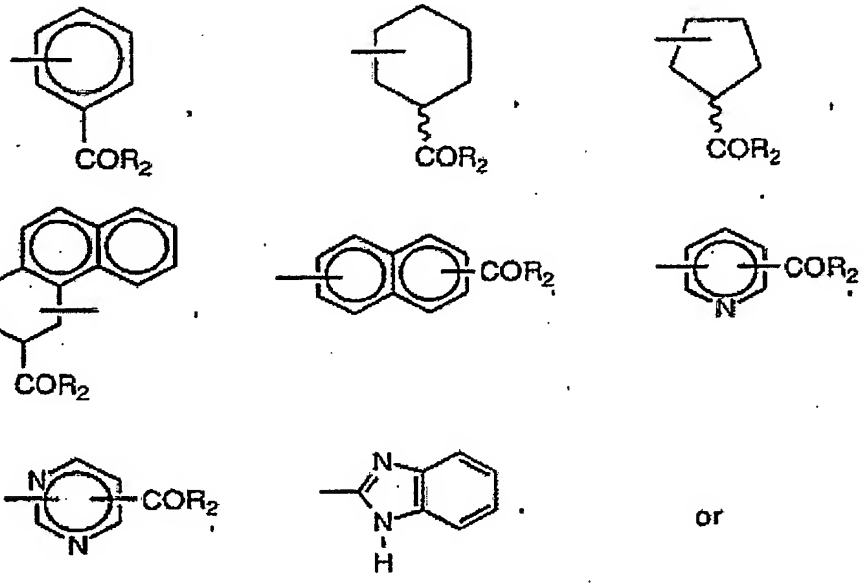


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



wherein R_{21} is C_{1-10}-alkyl;

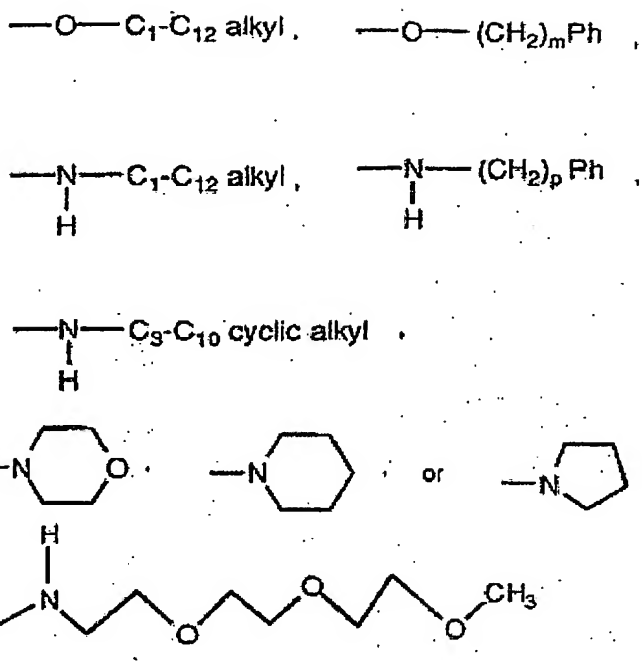
L is



or

; and

R_2 is



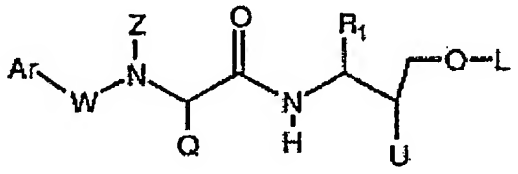
m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

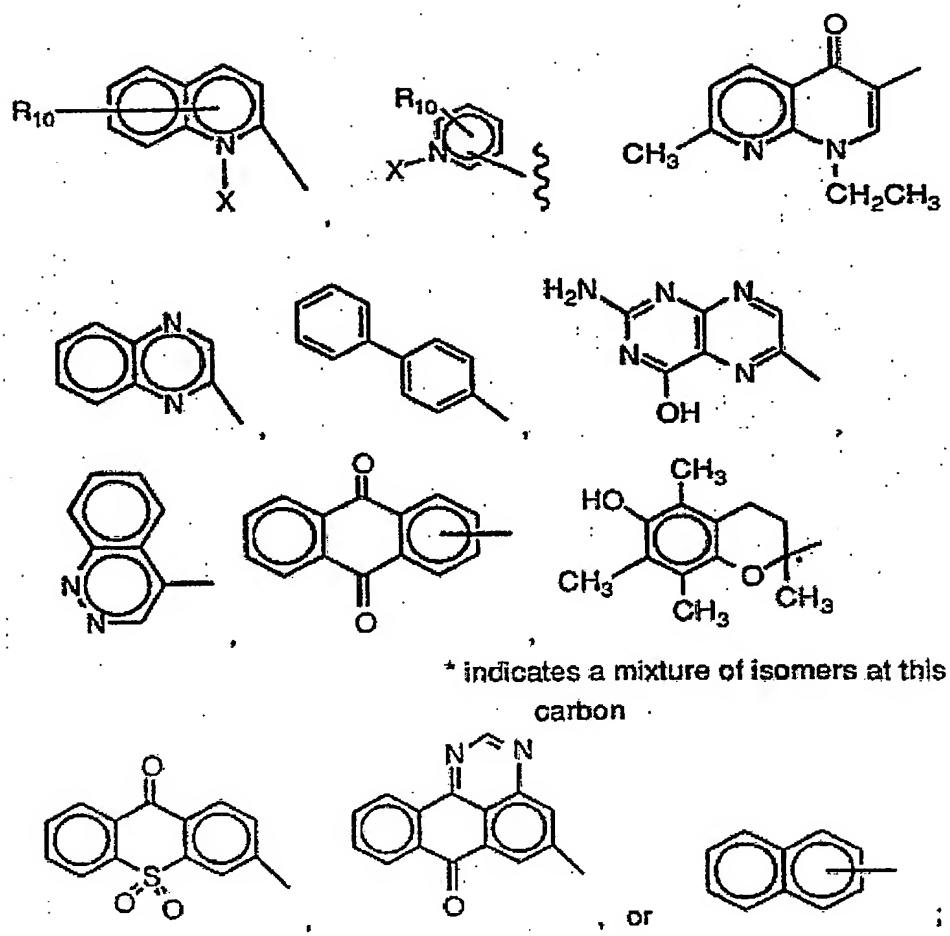
an epimer or racemate thereof.

20. A method for inhibiting cleavage of an amyloid precursor protein (APP) isotype at a site in the APP isotype that is susceptible to cleavage, comprising contacting said APP isotype with an effective cleavage inhibitory amount of a compound of formula (I) or pharmaceutically acceptable salt thereof:



I

wherein Ar is

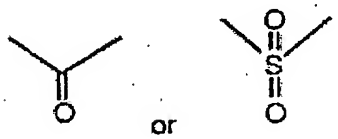


;

R_{10} is H or OH;

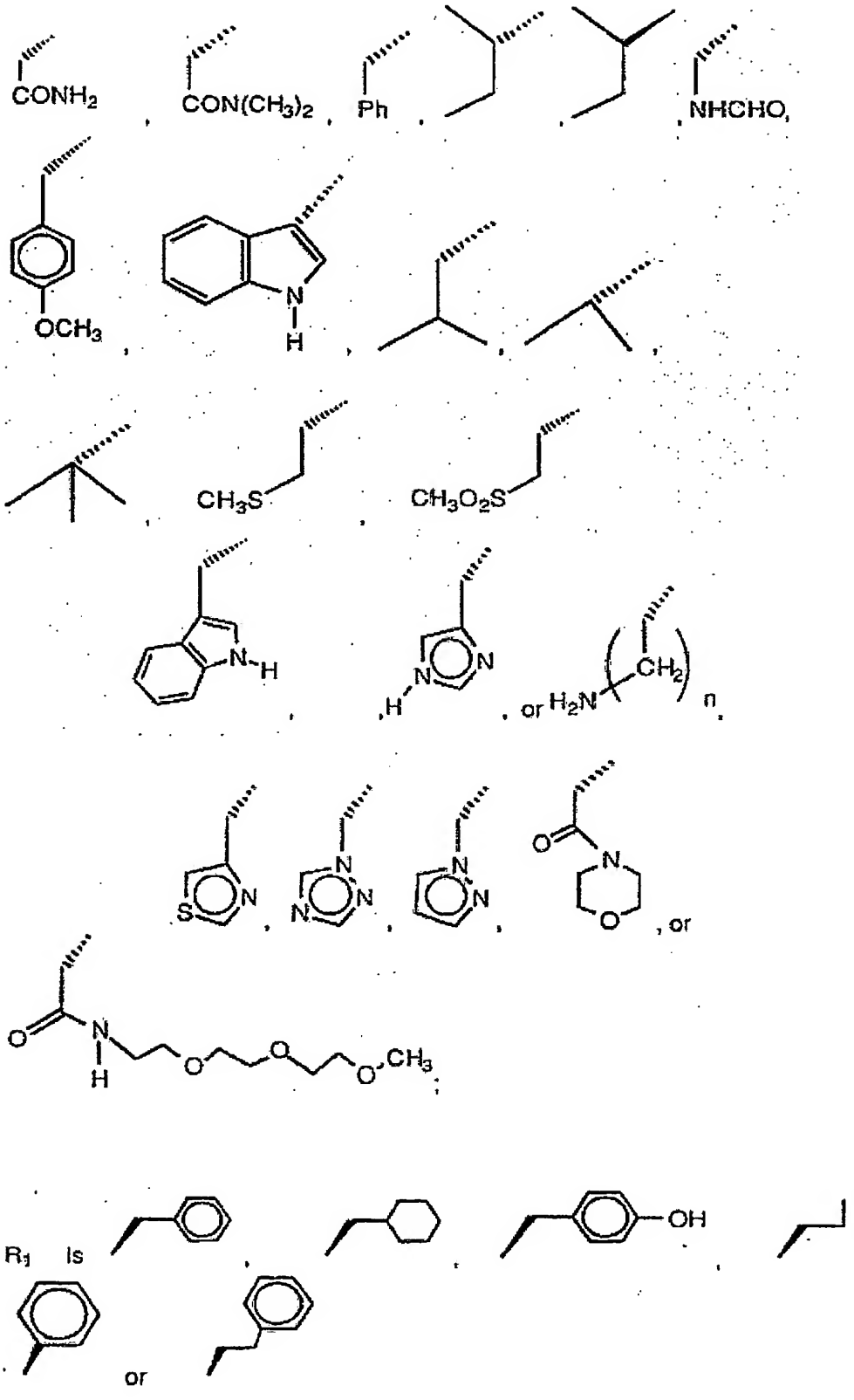
X is O or an electron pair;

W is



;

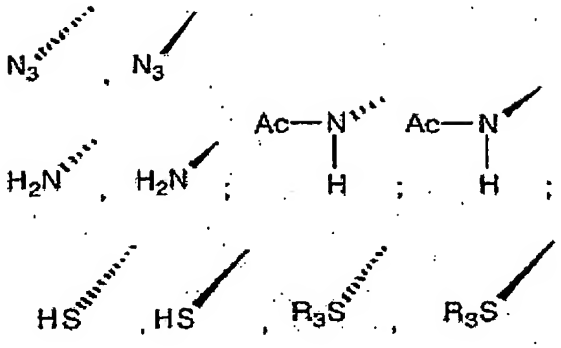
Q is



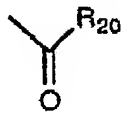
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

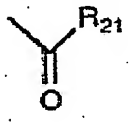
U is



R_3 is C_{1-11}-alkyl or

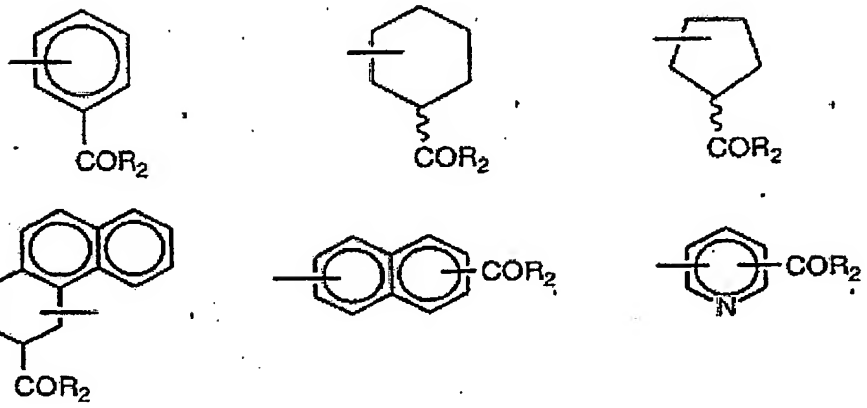


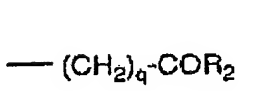
wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



wherein R_{21} is C_{1-10}-alkyl;

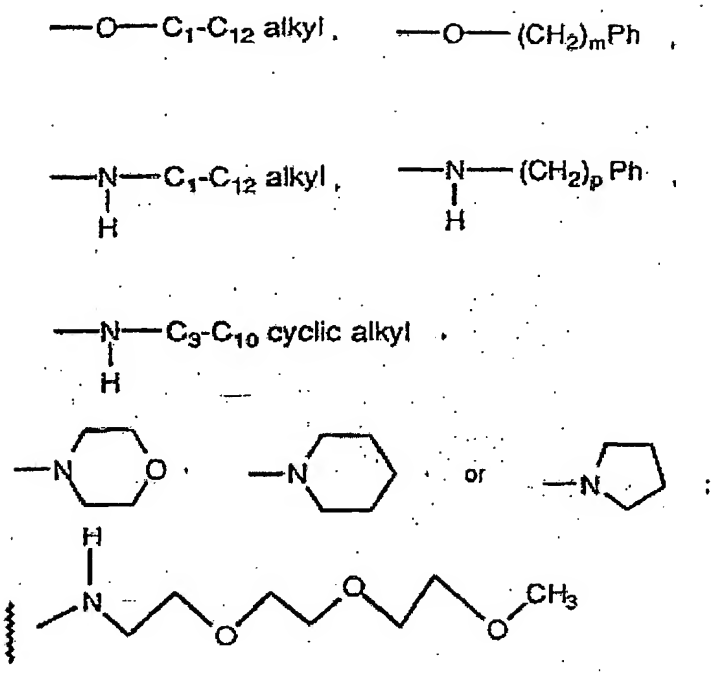
L is





or

R_2 is



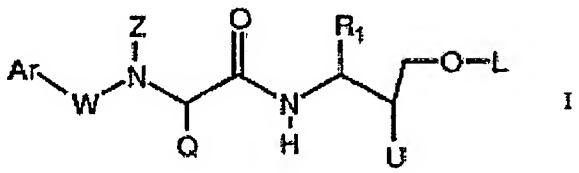
m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

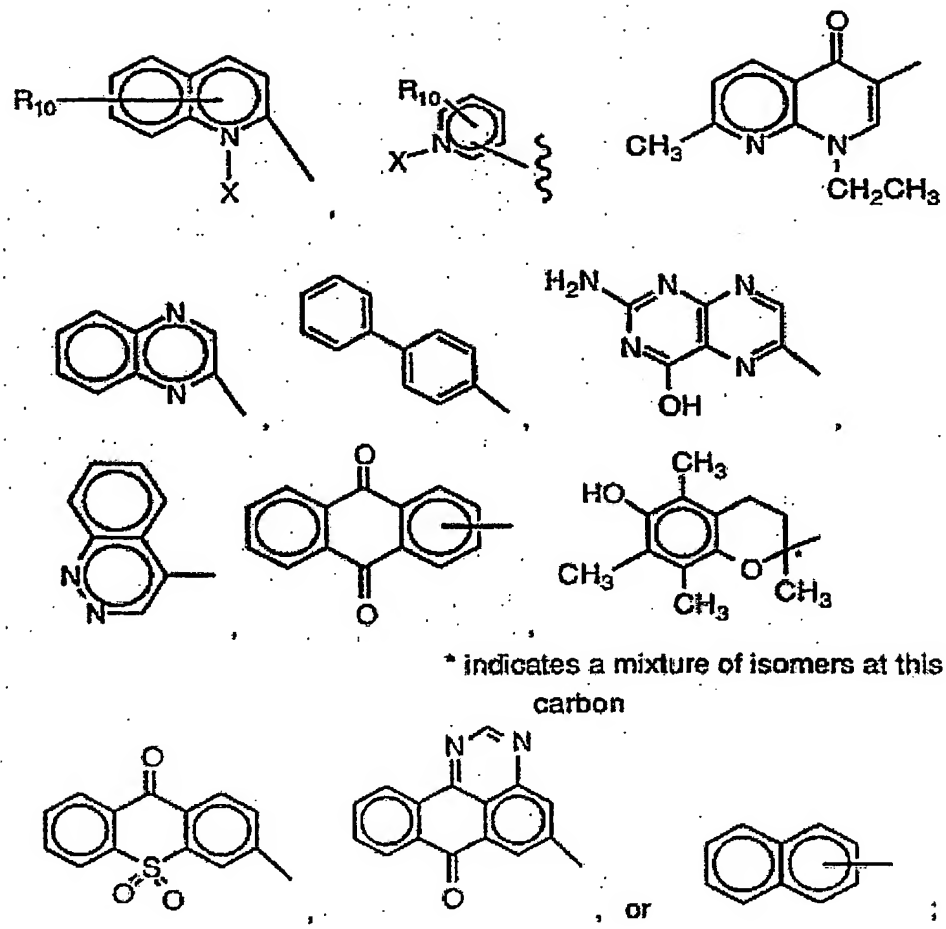
an epimer or racemate thereof.

21. A method for inhibiting production of amyloid beta peptide (A beta) in a cell, comprising administering to said cell an effective inhibitory amount of a compound of formula (I) or pharmaceutically acceptable salt thereof:



I

wherein Ar is

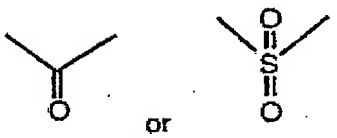


* indicates a mixture of isomers at this carbon

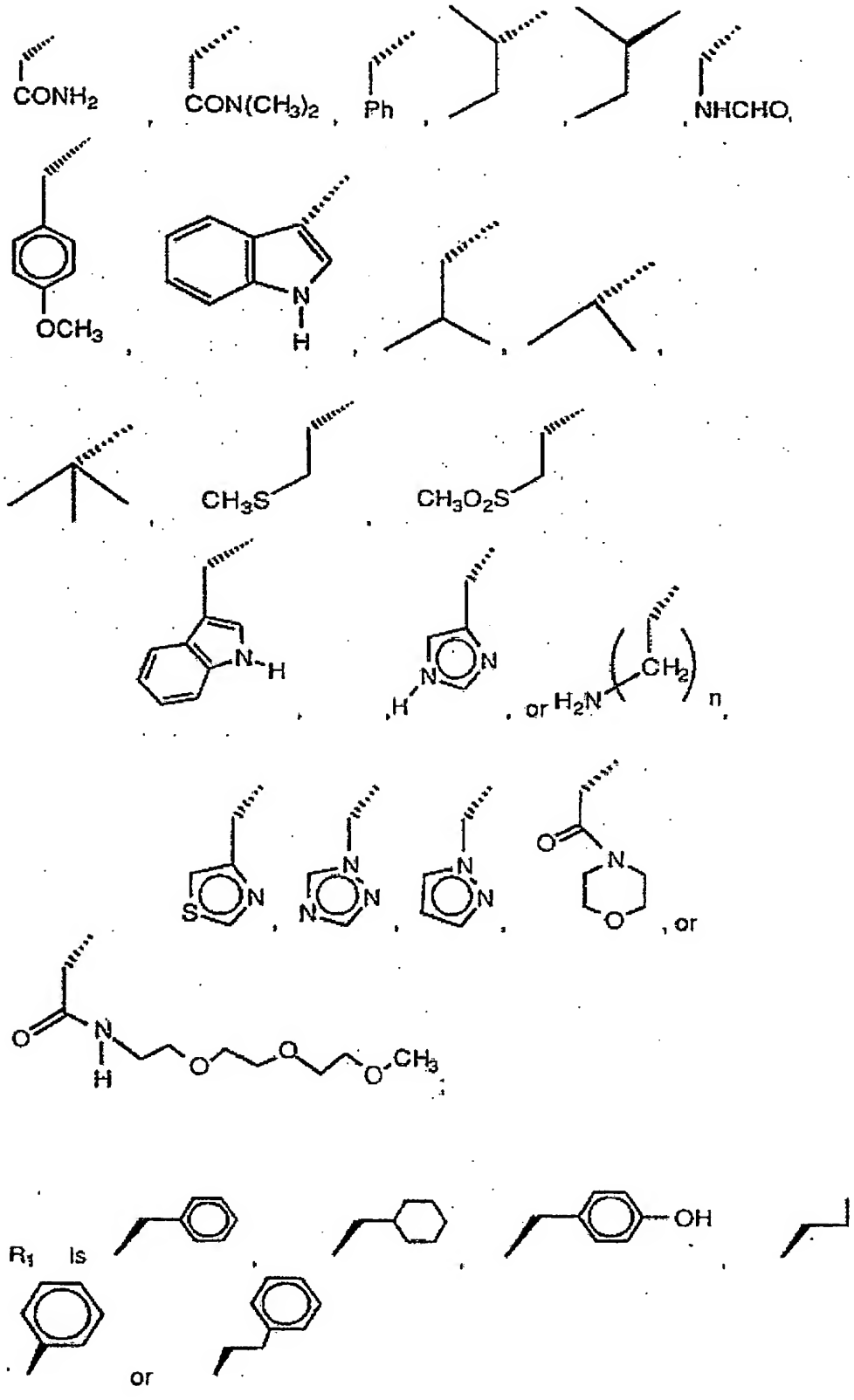
R_{10} is H or OH;

X is O or an electron pair;

W is



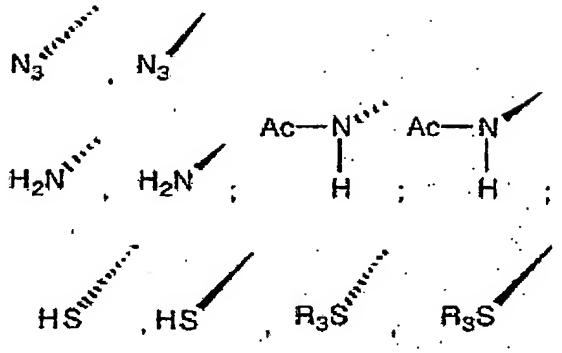
Q is



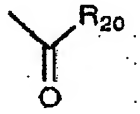
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

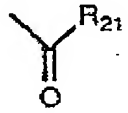
U is



R_3 is C_{1-11}-alkyl or

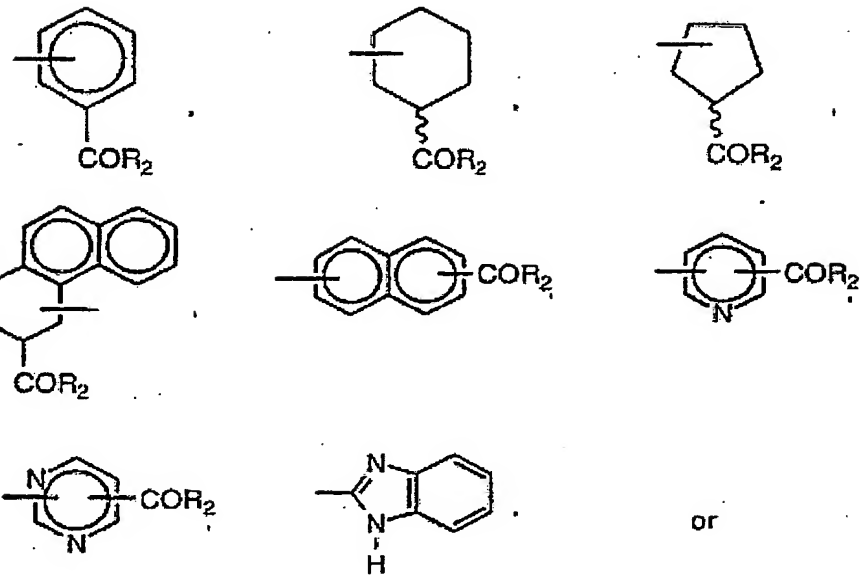


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



wherein R_{21} is C_{1-10}-alkyl;

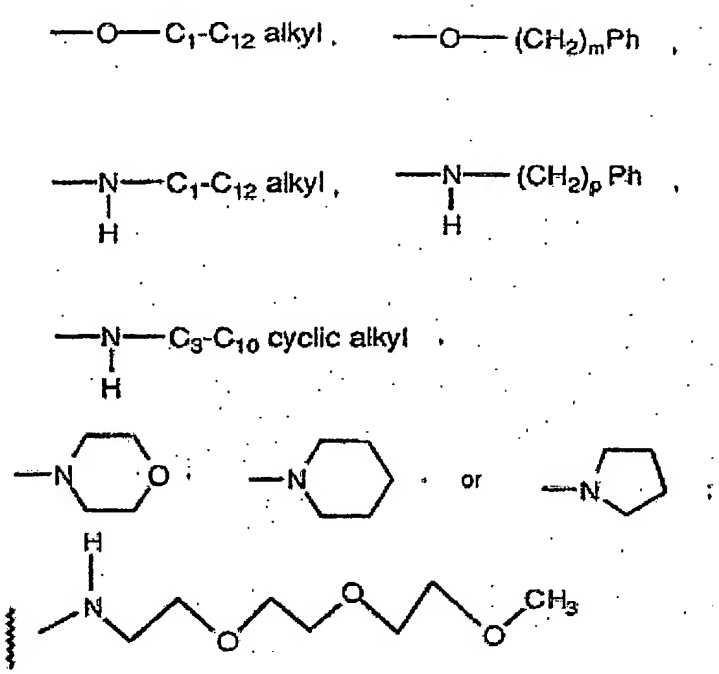
L is



or

$-(CH_2)_q-COR_2$;

R_2 is



m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

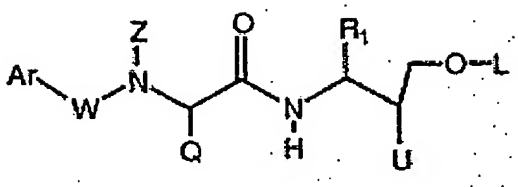
an epimer or racemate thereof.

22. The method of claim 21, wherein the cell is an animal cell.

23. The method of claim 22, wherein the animal cell is a mammalian cell.

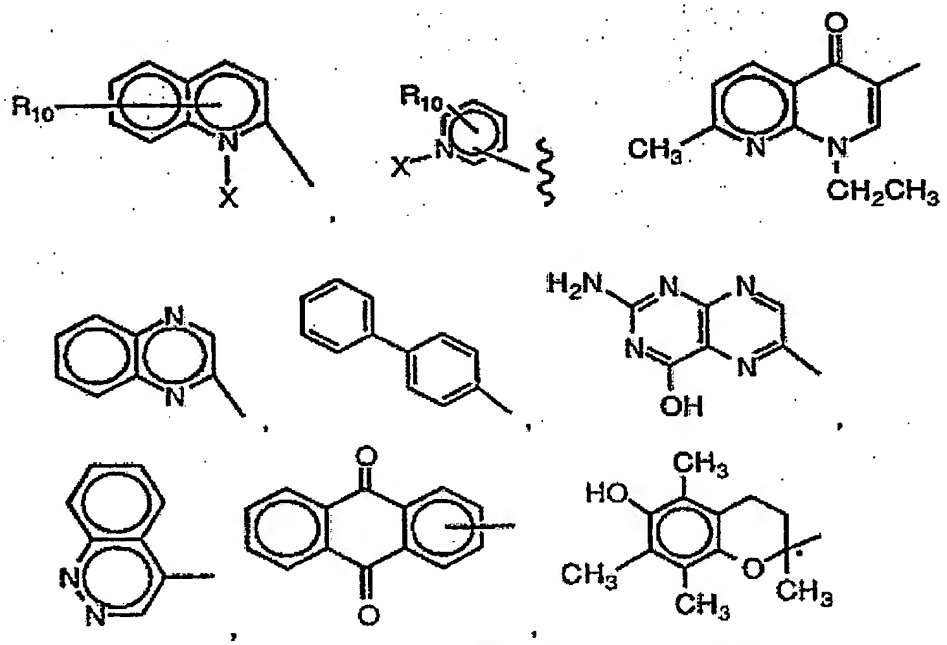
24. The method of claim 23, wherein the mammalian cell is human.

25. A composition comprising beta-secretase complexed with a compound of formula (I):

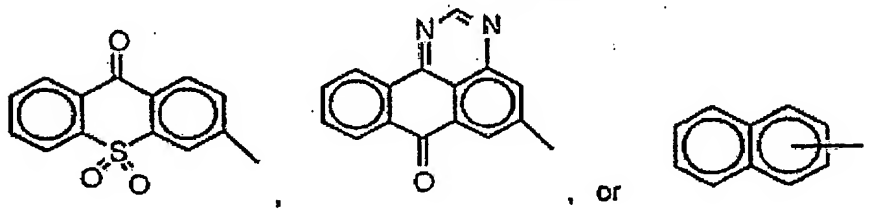


I

wherein Ar is



* indicates a mixture of isomers at this carbon

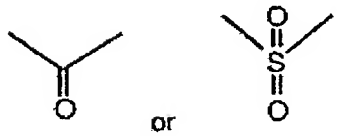


;

R_{10} is H or OH;

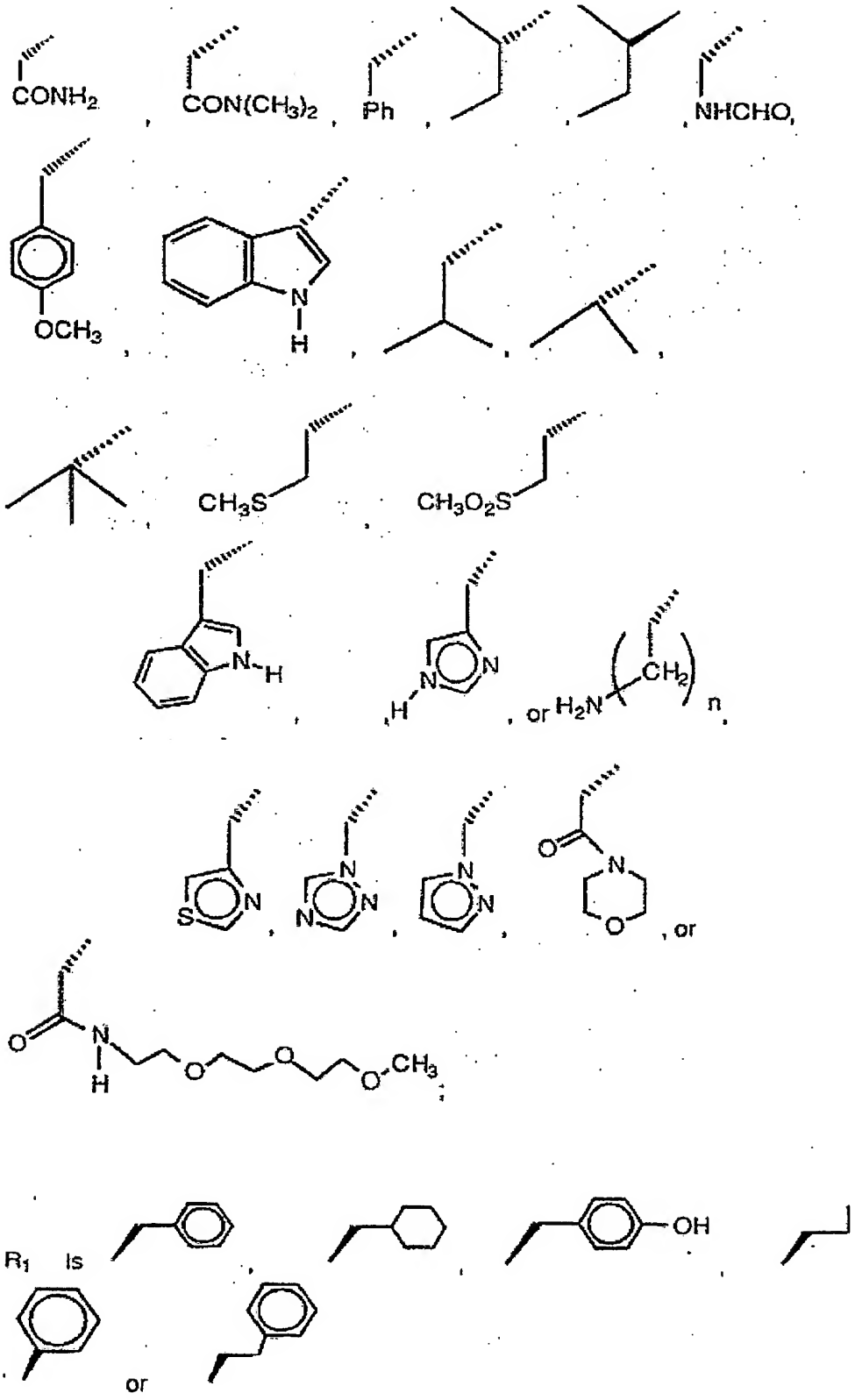
X is O or an electron pair;

W is



;

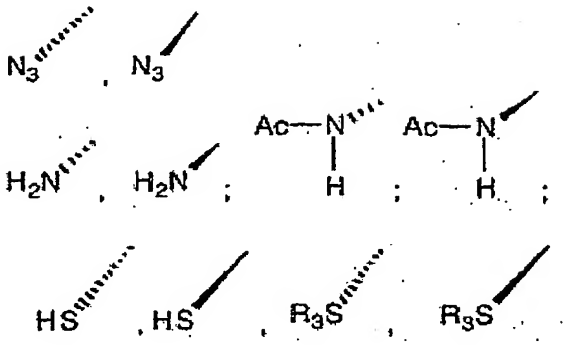
Q is



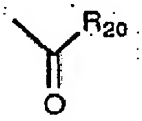
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

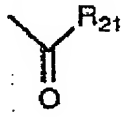
U is



R_3 is C_{1-11}-alkyl or

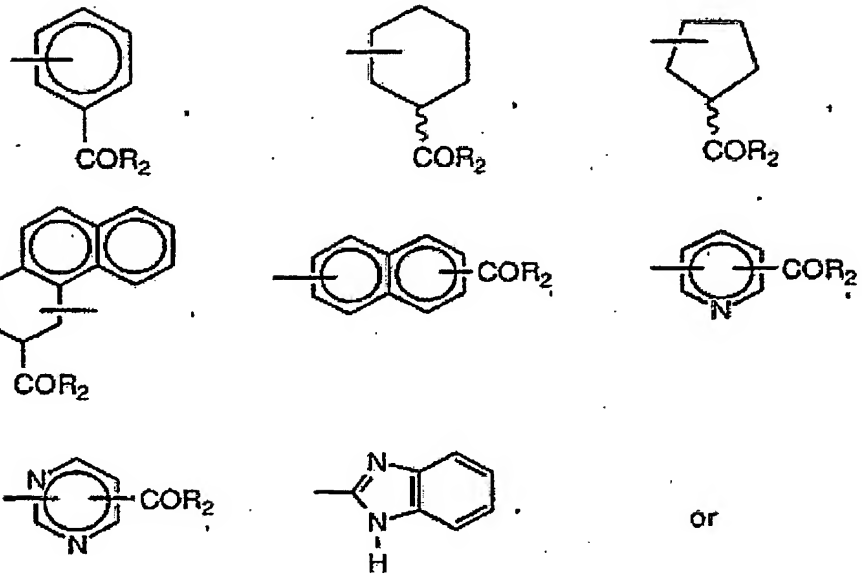


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or

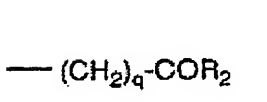


wherein R_{21} is C_{1-10}-alkyl;

L is

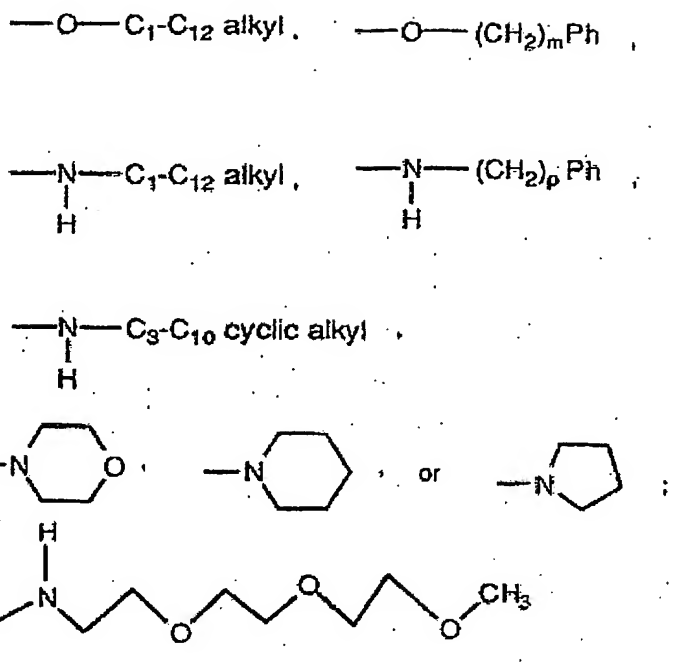


or



;

R$_2$ is



m is 0, 1 or 2;

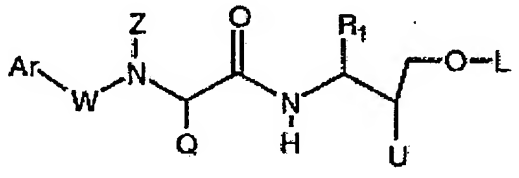
p is 0, 1 or 2; and

q is 0, 1, or 2;

an epimer or racemate thereof.

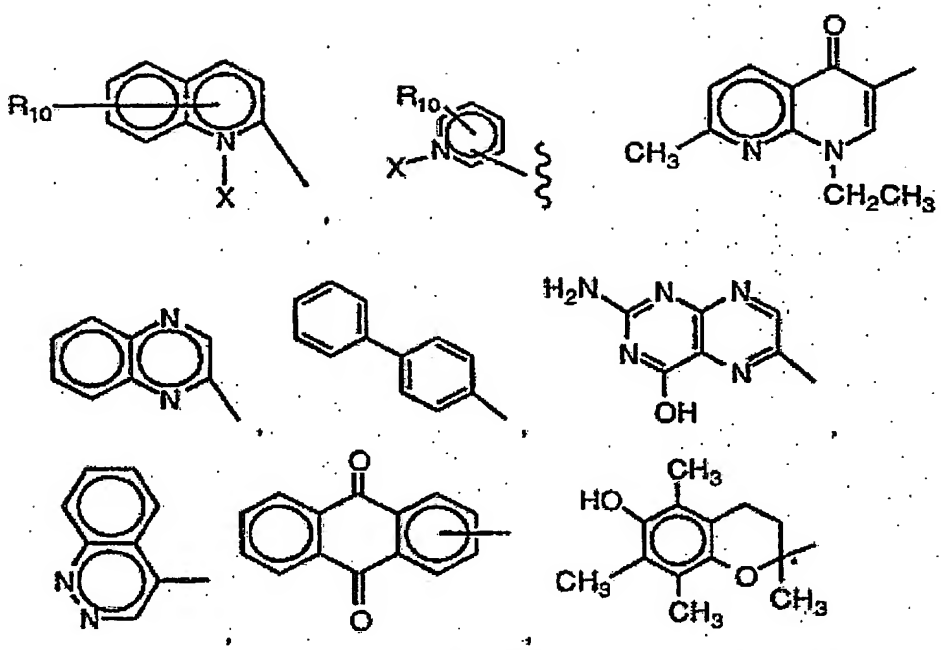
26. A method for producing a beta-secretase complex comprising the composition of claim 25.

27. A method for inhibiting the production of beta-amyloid plaque in an animal, comprising administering to said animal an effective inhibiting amount of a compound of formula (I) or a pharmaceutically acceptable salt thereof:

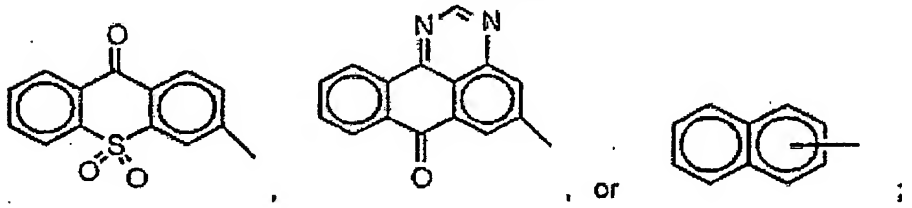


I

wherein Ar is



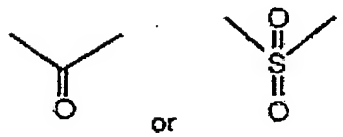
* indicates a mixture of isomers at this carbon



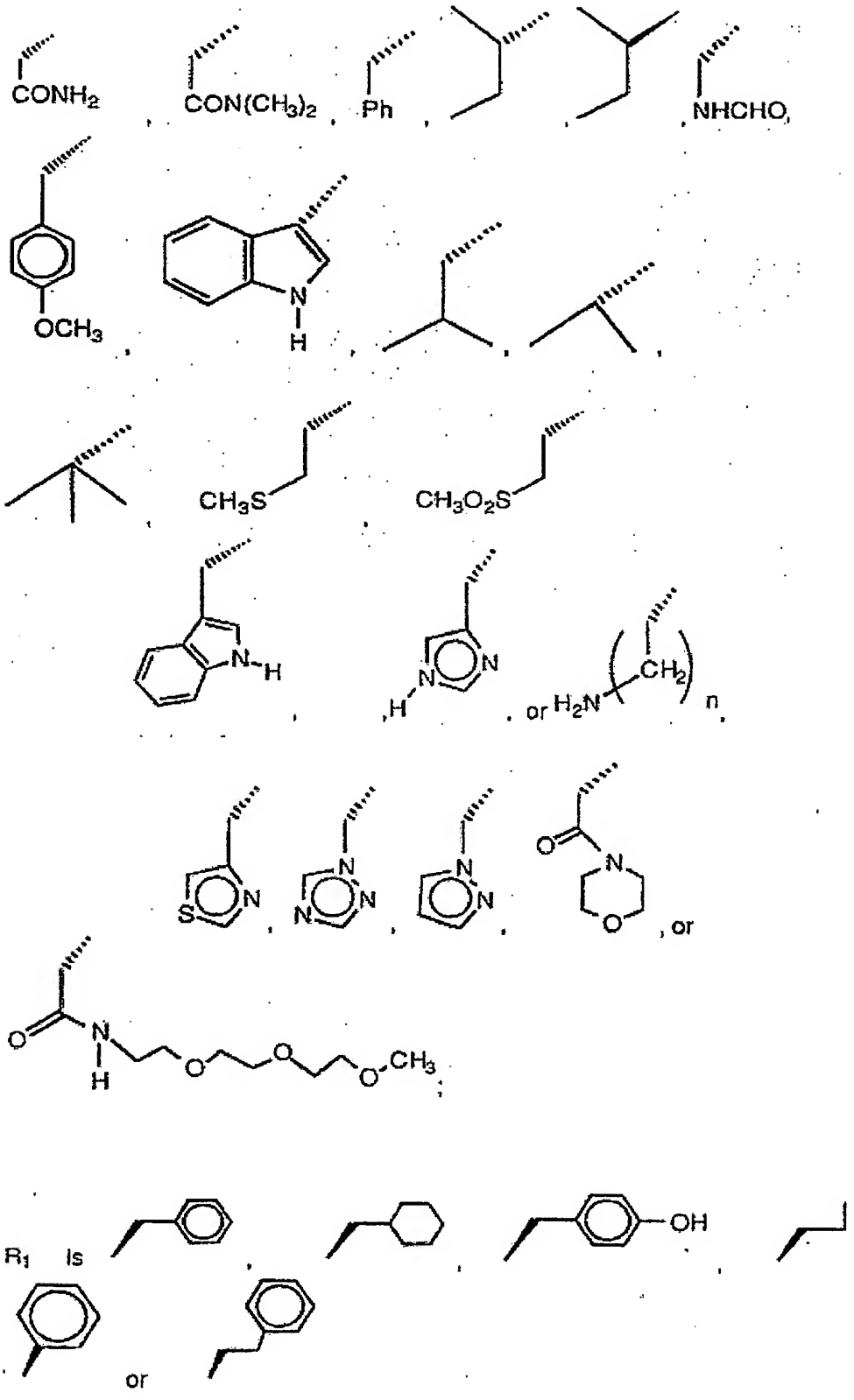
R_{10} is H or OH;

is O or an electron pair;

W is



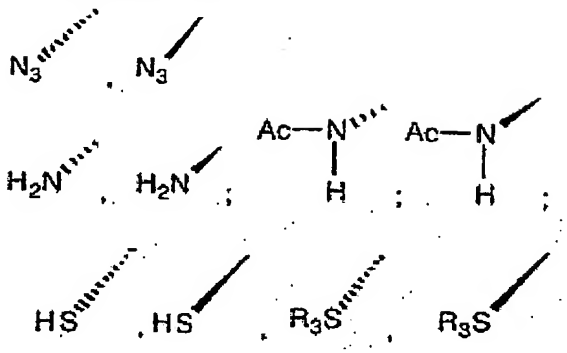
Q is



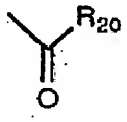
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

U is



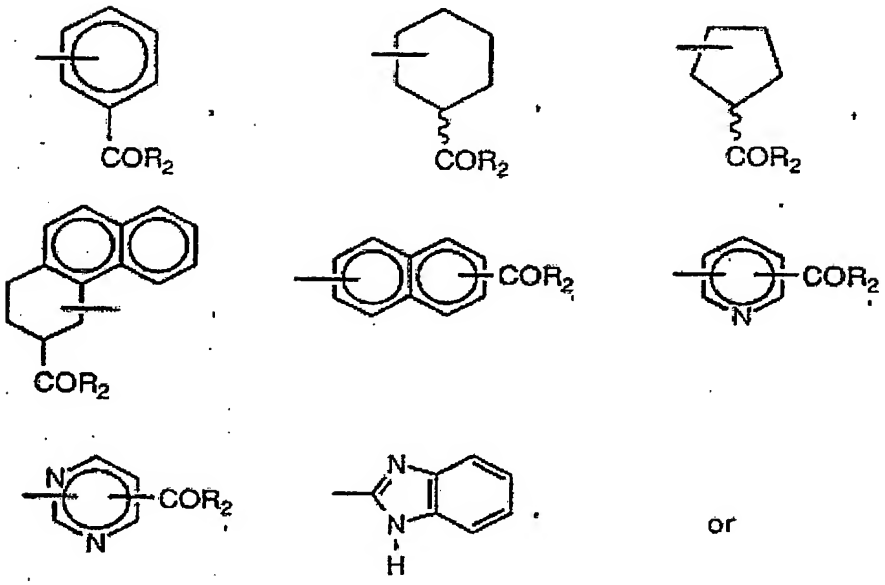
$_3$ is C_{1-11}-alkyl or

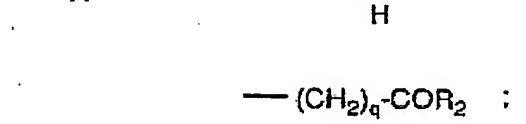


erein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or

rein R_{21} is C_{1-10}-alkyl;

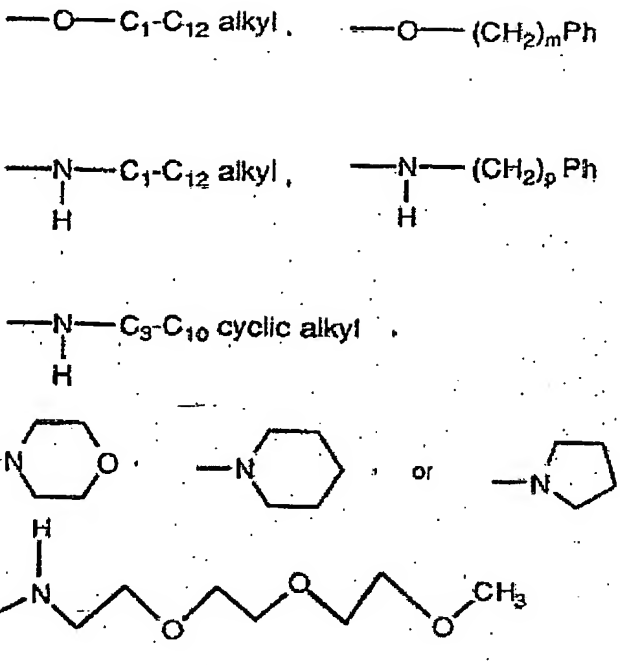
L is





or

R_2 is



is 0, 1 or 2;

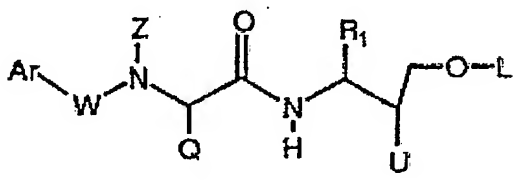
is 0, 1 or 2; and

is 0, 1, or 2;

an epimer or racemate thereof.

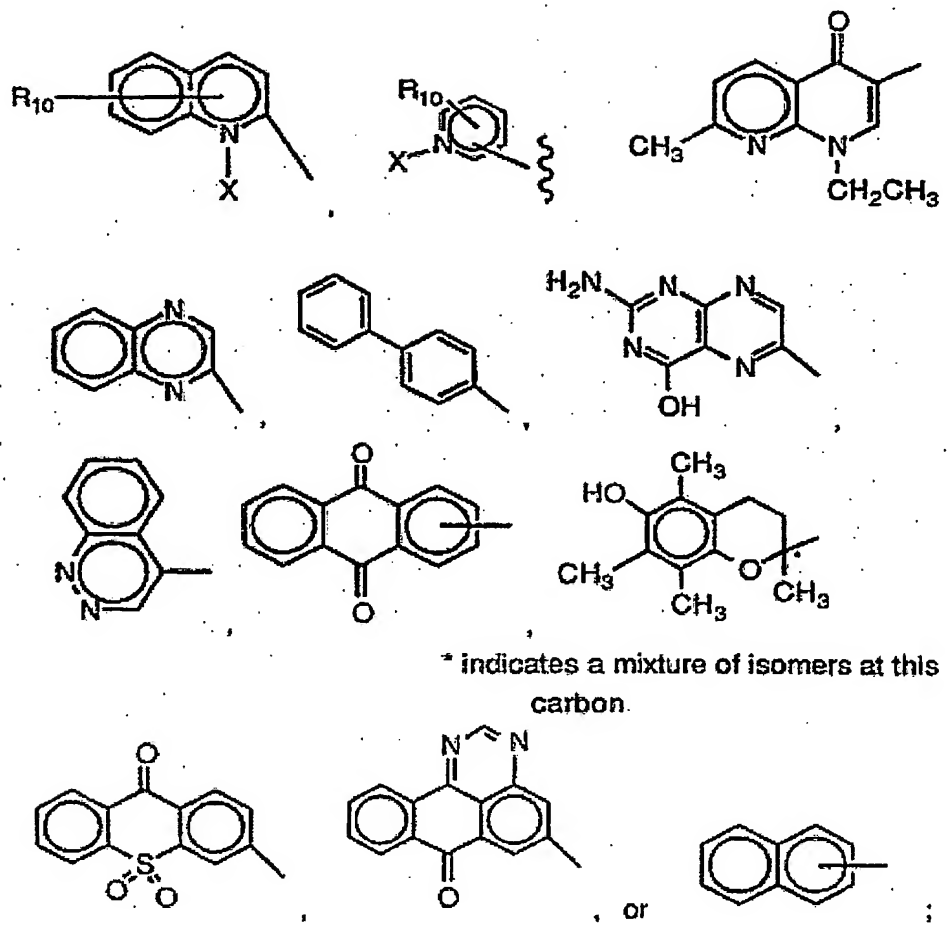
28. The method of claim 27, wherein said animal is a human.

29. A method for treating or preventing a disease characterized by beta-amyloid deposits on or in the brain, comprising administering to a subject in need of such treatment or prevention an effective therapeutic amount of a compound of formula (I) or a pharmaceutically acceptable salt thereof:



I

wherein Ar is

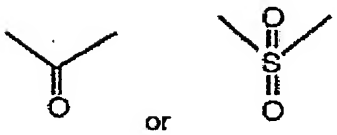


* indicates a mixture of isomers at this carbon.

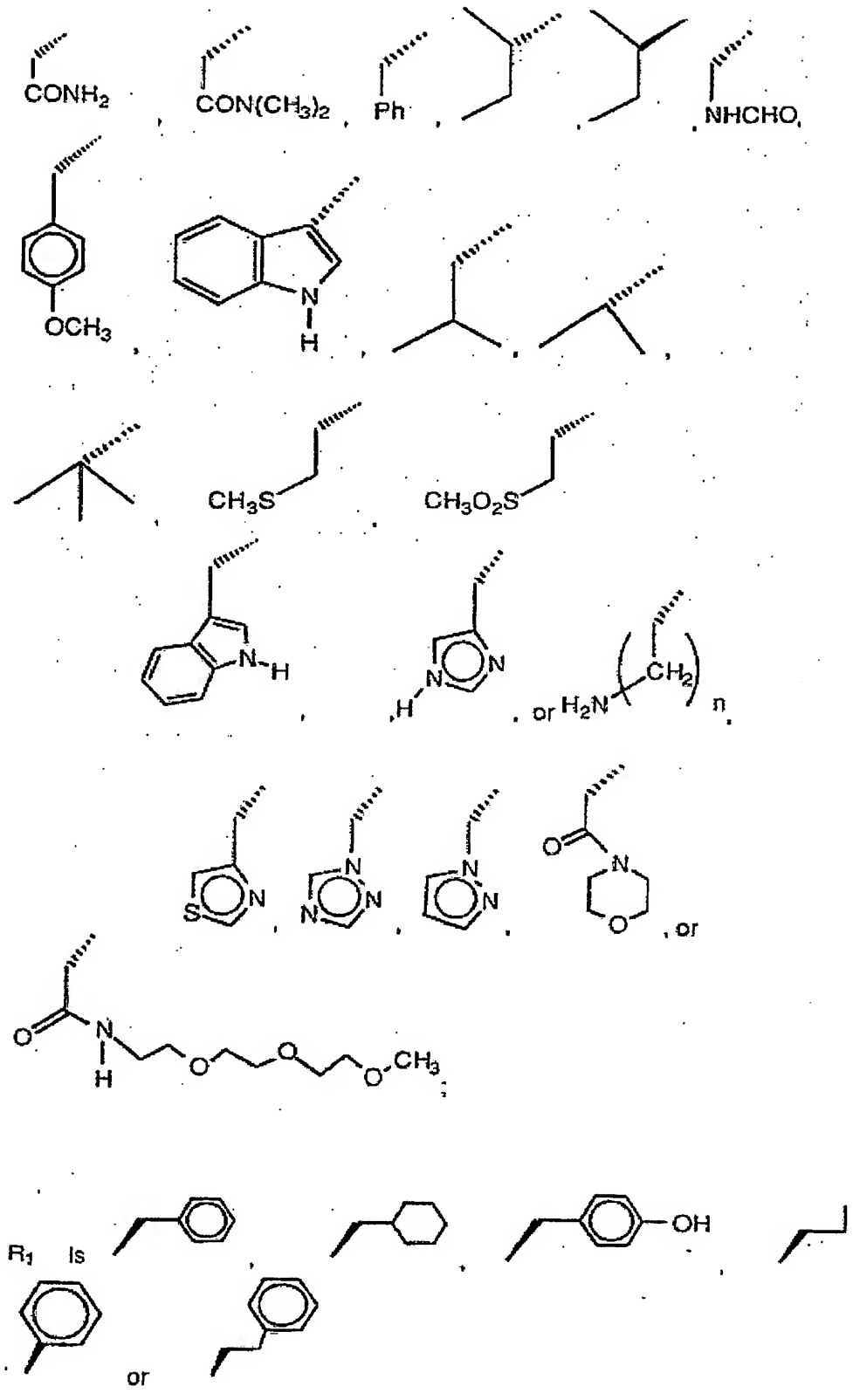
R_{10} is H or OH;

X is O or an electron pair;

W is



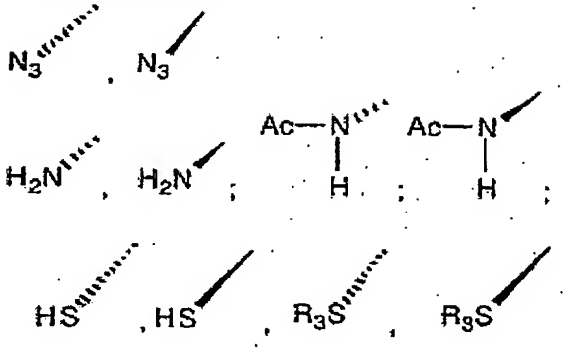
Q is



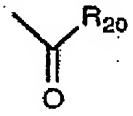
5

Z is H or Z and Q taken together are $-(CH_2)_3-$ or $-(CH_2)_4-$

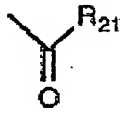
U is



R_3 is C_{1-11}-alkyl or

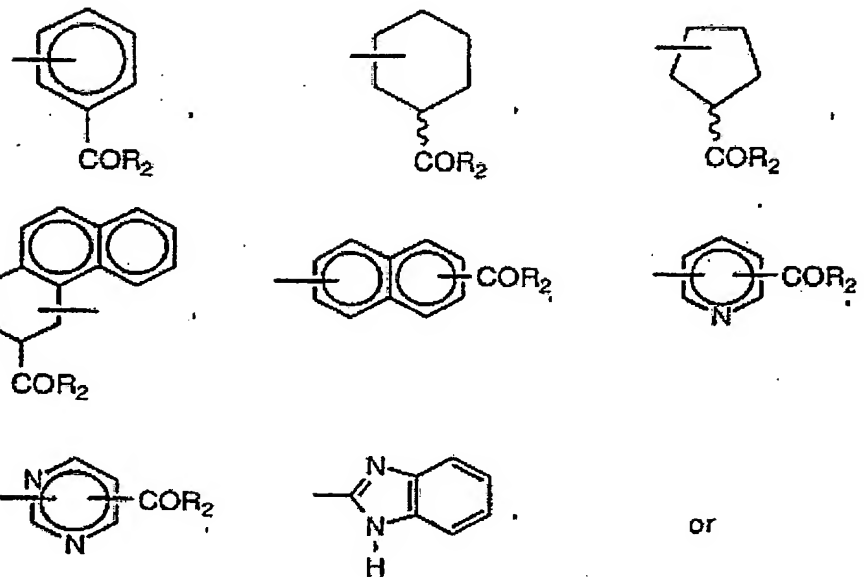


wherein R_{20} is H or C_{1-10}-alkyl; and Ac is formyl or



wherein R_{21} is C_{1-10}-alkyl;

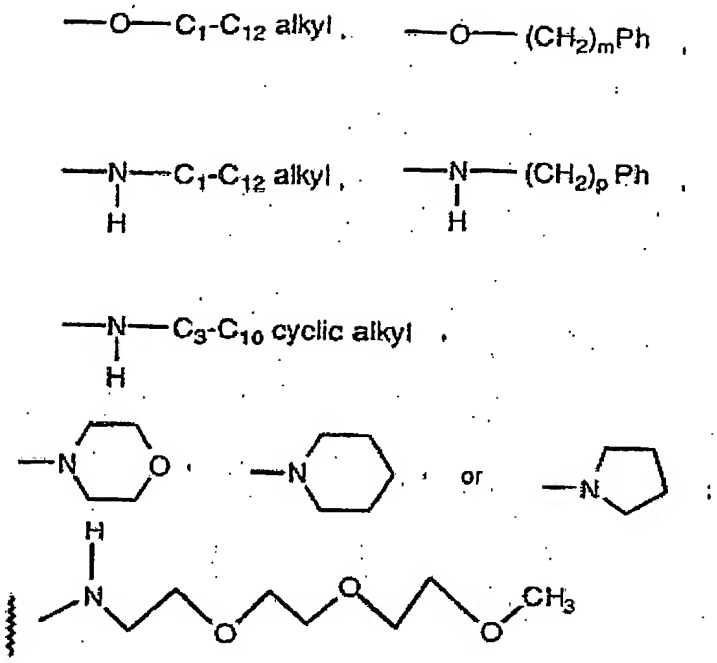
L is



or

$-(CH_2)_q-COR_2$;

R_2 is



m is 0, 1 or 2;

p is 0, 1 or 2; and

q is 0, 1, or 2;

an epimer or racemate thereof.

30. A method of treatment according to any of claims 1-6, further comprising administration of one or more therapeutic agents selected from the group consisting of an antioxidant, an anti-inflammatory, a gamma secretase inhibitor, a neurotrophic agent, an acetyl cholinesterase inhibitor, a statin, P-gp inhibitors, an A beta peptide, and an anti-A beta peptide.